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A PERSONAL APPRECIATION OF SIR WILLIAM OSLER*

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BALTIMORE

The subject chosen for this, the opening address in the Osler Memorial Series, is a brief appreciation of Sir William Osler himself and a consideration of the influence exerted by him through his unique personality, and by his spoken and written words, on the medical thought and action of his time. As I stand before you this evening, I find myself appalled by the immensity of my task and by my own inability properly to perform it. Anything with which the name of William Osler is associated, to be at all in keeping with its title, should be something well worth while. The short notice and the consequent lack of time and opportunity for thought and careful preparation are urged as explanation and excuse for the rather desultory and disconnected character of the subject matter composing this address, which has necessarily taken a rather personal and reminiscent vein. It is an all too inadequate tribute to that charming personality, that inspiring teacher, that great physician so beloved by all his students, his associates, his patients and his friends, and so admired by all who knew him.

The appropriateness of the subject chosen for this particular occasion will be at once recognized by all. In the same breath, the query will naturally arise in the minds of some as to my particular qualification satisfactorily to deal with it. I hasten to acknowledge the justice of this query and to reply that my only qualification, and one that is shared by some at least present here tonight, is that I knew well the "Chief," as he was familiarly and lovingly known by his associates and pupils, and loved him.

It was my privilege to know Dr. Osler from the day when the Johns Hopkins Hospital was formally opened, May 7, 1889, and to be more or less intimately associated with him during the sixteen years of his connection with that institution as its first physician-in-chief, and the first occupant of the chair of medicine in the Johns Hopkins University Medical School. It was not my privilege to serve under him as an undergraduate or assistant, but I, like every other earnest student fortunate enough to have been attached to the staff of the Johns Hopkins Hospital in any capacity whatsoever during those golden years of opportunity, could not fail, in some degree, to come under the magic spell of his influence, so potently manifested wherever he happened to be, whether in Toronto, Montreal, Philadelphia, Baltimore or Oxford. It was an influence so subtle and yet so compelling that one could not remain in his immediate environment for any length of time without receiving in some form or other his lasting imprint. Who can do justice to such a man? Who can recount his virtues? He had no vices. Some faults he had, for he was intensely human. Who can properly evaluate his qualities of mind or heart, or measure the extent of his influence upon the profession of medicine? I can only indulge the hope that from my vantage point, a little removed from the close and intimate relationship of pupil and teacher, or assistant and chief, my perspective may be a little better, perhaps, than that of either of the former and that thus I may be able the more justly to appraise the qualities of head and heart of that truly great man, at the time of his death the recognized leader of his chosen profession, in whose honor and for the perpetuation of whose memory we have gathered here this evening.

BIOGRAPHY

William Osler was born in Ontario, Canada, July 12, 1849, and like many distinguished men, was the son of a clergyman. His early education was received in Toronto, and he graduated from Trinity College, in 1868. He took his medical degree at McGill University, Montreal, in 1872. He studied abroad for two years, chiefly in London, Berlin and Vienna. On his return in 1874, he was made professor of the institutes of medicine in McGill University. Here he remained until 1884, when he accepted a call to the professorship of clinical medicine in the University of Pennsylvania. When the medical department of the Johns Hopkins University was inaugurated in 1889, he became the professor of the theory and practice of medicine and the physician-in-chief to the Johns Hopkins Hospital. Here he formed one of the famous "Big Four" in the faculty, and whatever of credit is due to the organization and development of that institution and the far-reaching effect that it had on medical education in this country is shared by him.

In the fall of 1904, he accepted a call to become regius professor of medicine in the University of Oxford, England, where he remained until his death, Dec. 29, 1919—fifteen years crowded with manifold activities, especially during the World War, when his counsel and advice were continually in demand, both by military and civil authorities. His career in the various institutions he served is too well known by the public and the profession, and especially by those present, to require extended comment.

* The first annual address of the Osler Memorial Lectureship, read before the Los Angeles County Medical Association, under the auspices of the Osler Memorial Association of Los Angeles.

HONORS

William Osler was the recipient of many honors, too numerous to recount. Institutions of learning were eager to honor themselves in honoring him. The list of universities conferring degrees on him would include practically all the leading ones of this country and many of those in Great Britain. In addition to all this, in 1911 he was created a baronet of the United Kingdom, by King George V. A rather unusual distinction completed this list of honors when, in 1918, Sir William was made president of the British Classical Association, a rare honor indeed to be conferred upon a physician, a member of a profession without special classical training. This is but an evidence of the wide range of his interest and the extent of his scholarship.

PERSONALITY

Well do I remember that eventful day, May 7, 1889, when the doors of the Johns Hopkins Hospital were thrown open to the public. There had gathered a distinguished assemblage containing many notable personages, both lay and medical, representing the élite of the profession of the country, and the responsible citizens of Baltimore and vicinity. Among the prominent figures who were present was one on whom, perhaps more than any one else, were focused the attention and the interest of the assemblage. That man, a rather spare figure, a little below the average height; dressed immaculately; debonair, with a flower in the buttonhole of his Prince Albert; with coal black hair, just beginning to get a little thin over a high forehead indicative of great intellect, a flowing mustache, bright, piercing eyes in which lurked almost constantly a most engaging twinkle; a complexion rather sallow, yet suggesting good health and constitution; with quick and agile movements, indicating great nervous energy; and altogether giving the impression of a body under excellent control physically, endowed with great mental acumen and poise, and possessed to a marked degree of the sense of humor. Wherever he was, he became the center of an interested and interesting group of men and women; the men especially interested in his brilliant sallies in reply to questions, or in his conversational ability, showing a wide range of interest along lines other than those strictly medical. The women, and that was so characteristic of him, were charmed, yet exhibited often a quizzical and somewhat puzzled expression; for it was part of Dr. Osler's religion, so expressed by him, repeatedly, never to take any woman too seriously. This is well expressed by Dr. McCrae:

> Many interviews with patients come to memory. In one, the center of the stage was occupied by a nervous woman to whom something had been very kindly said of the need of self-control. With the tears flowing freely and a handkerchief in active use, "Oh, Dr. Osler, you misjudge me cruelly." He, standing at the foot of her bed, replied in a serious tone of voice, and with a twinkle in his eye, "Madam, I learned early in life never to judge any woman and that rule I have strictly kept; therefore I cannot have misjudged you. Good morning."

However, whether they could understand him or not, the women came readily under the spell of his personality, just as the men. It was extraordinary, the power of his personality; one could not work with or under him without experiencing it. This was equally true of all grades, socially or intellectually, for other leaders of medical thought and opinion were just as ready to acknowledge his influence as were his students, associates and patients.

The effect of his presence and his cheery words on his patients was most stimulating and helpful, and at times truly electrical. It was urged against Dr. Osler by some that he belonged to the school of therapeutic nihilists; and there was an element of truth in this charge. In fact, it was also rather jokingly said of him that he never ordered a drug for a patient except from a list of medicines containing not over half a dozen, all of which were poisons. Perhaps he needed, less than many others, to use drugs with his patients. Certainly this was true of tonics, for it would be hard to conceive of any tonic producing a more happy or more lasting effect on a patient than the entry of Dr. Osler into a sickroom: a cheery word of greeting, a characteristic wave of the hand, a friendly or even familiar slap on the back, a bright sally at the expense of the patient, not leaving any sting behind, as, unfortunately, witty sayings so often do, but rather leaving a pleasurable afterglow, the effect of which on the mind and consciousness of the patient was both happy and salutary. Seemingly without knowing it, he put into operation the best there is in psychotherapy. To those who were so unfortunate as never to have had the opportunity to observe it, this description of the effect of Dr. Osler's presence in the sickroom may perhaps seem a bit fulsome, but we who have had the privilege, repeatedly, of learning by watching him how to approach a patient in order to gain his confidence, to calm his fears, or to inspire hope, know that it would be difficult to exaggerate the effect of his personality on those, well or ill, with whom he came into immediate contact.

One of his especial characteristics was optimism; not of the foolish sort, which, ostrich-like, buries its head in the sand and says all is well when it surely is not, but the optimism which grasps every opportunity legitimately and wisely to turn the current of the patient's attention and thought from self and gloomy forebodings into more healthful and stimulating channels. Hope was the bright particular star to which he was constantly pointing in all his relations with his patients. It was the gospel he preached to his students. His writings are filled with it.

One of the outstanding characteristics of the "Chief" was his thorough understanding and interest in human nature. He, like Abou-ben-Adhem, loved his fellow man despite faults and frailties, toward which he was always willing to turn a blind eye or a deaf ear. At the same time, in a very tactful way and from some text thus furnished, he preached many a lay sermon which had a lasting effect for good on the patient, or the group of medical students and assistants, or the medical or lay audience, as the case might be, to whom it happened to be addressed.

In addition to this, there was developed in him that extraordinarily rare faculty, the capacity of making each individual patient feel that he was personally interested in his or her case, not by number but as an individual. This was not merely assumed interest with him, either: it was genuine. Those who knew him best came to feel that to an unusual degree he was endowed with the love of his fellow men, both individually and collectively. This was one of the most potent of the impelling forces in his life and was largely responsible for the spirit of helpfulness that characterized his work.

The relationship between him and his students and his staff of associates was most cordial. Never was

chief more loyally served or more thoroughly worshiped by his subjects than was Dr. Osler by those associated with him. Their relations were certainly ideal. To see Dr. Osler at his best, to get a glimpse of the real "Chief," of the many-sidedness of his character, of his wonderful memory for cases, of the inexhaustible storehouse of medical lore with which his mind was filled, his remarkable insight into disease and its protean manifestations, and to feel the magic spell of his presence and personality, one must watch him by the bedside of his patient, surrounded by his students. There he sits in the midst of them, with thoughtful mien, in characteristic pose, his exquisite hands palpating the patient or toying with a stethoscope or adjusting a recalcitrant cuff; alert, never missing an opportunity to direct attention to some point of interest illustrated by the case in hand, or to point out to the students some direction in which possibly addition could be made to existing knowledge by study and research. Nor was the opportunity lost to try, in his own inimitable way, to stimulate the desire for these things in the minds of his students.

As to his habits, he was extremely punctual in attendance on all his appointments. Rarely, if ever, was he known to be late. Although he never seemed to be in a hurry, he lost no time. The failure now and then of other parties to an appointment to be punctual drew from him an occasional characteristic remark which, though kindly expressed, usually effectually prevented a recurrence of similar lack of punctuality.

He was a man of few words. He never expressed an opinion until he had acquainted himself fully with all of the available facts in the case. Then his opinion was stated in few words, and to the point, so that it could be readily understood by every one. Taciturnity was one of his virtues. He cultivated it and earnestly advised its cultivation in others. He was never heard to speak ill of any one. Sometimes in righteous indignation he would enter a vigorous protest against some wrong or wrong-doer. Under such circumstances, he could express himself both vigorously and emphatically, and at times in truly picturesque fashion. This was his characterization of the "patent" or proprietary medicine "drummer," always a trial to his soul: "While many of them are good sensible fellows, there are others voluble as Cassio, independent as Autolycus, and senseless as Caliban, who will tell you glibly of the virtues of extract of the coccygeal gland in promoting pineal metabolism, and are ready to express the most emphatic opinions on questions about which the greatest masters of our art are doubtful." What a delightful character sketch and how true we all know, to our edification and sorrow.

One of the cardinal principles of his life was the cultivation of equanimity. He preached this both in season and out of season and practiced it constantly, to the end.

AS A TEACHER

Dr. Osler had decided ideas as to the proper way to teach medicine, and these were not always in accord with prevailing methods. His ideas seem to have been influenced largely by the teachings of Louis, of whom and of whose methods of work he was an ardent admirer. He subscribed most heartily to the positive or modern method of the study of medicine by observation and analysis as distinguished from theory and dogma. He quotes with entire approval Louis' words:

> The edifice of medicine reposes entirely on facts, and truth cannot be elicited except from those facts which have been well and completely observed. To get an accurate knowledge of any disease, it is necessary to study a large series of cases, and to go into all the particulars; the conditions under which it is met, the subjects specially liable, the various symptoms, the pathologic changes and the effect of drugs.

Listen to what he says further in this regard:

> In what may be called the natural method of teaching, the student begins with the patient, continues with the patient, and ends his studies with the patient, using books and lectures as tools, as means to an end. The student starts, in fact, as a practitioner, as an observer of disordered machines, with the structure and orderly functions of which he is perfectly familiar. Teach him how to observe; give him plenty of facts to be observed, and the lessons will come out of the facts themselves. For the junior student in medicine and surgery, it is a safe rule to have no teaching without a patient for a text, and the best teaching is that taught by the patient himself. The whole art of medicine is in observation, as the old motto goes, but to educate the eye to see, the ear to hear, and the finger to feel, takes time, and to make a beginning, to start a man on the right path is all we can do. We expect too much of the student and we try to teach him too much. Give him good methods and a proper point of view, and all other things will be added as experience grows.

How much more rational, how much more effective this method with small groups of students than the old, now happily largely discarded, stereotyped lectures and text books, and recitations with large classes, in which it is impossible to have that intimate and personal contact between teacher and student so helpful to each.

Reared, as he was in his early youth, in a clerical home atmosphere, influenced, as he himself says, more profoundly than by any one else, by three of his old teachers, one of whom was a minister, and another later to become one, Dr. Osler's writings and addresses bear unmistakable evidence of this beneficent influence. Hear him while he speaks:

> As to your method of work, I have a single bit of advice which I give with the earnest conviction of its paramount influence in any success which may have attended my efforts in life. Take no thought for the morrow; live neither in the past nor in the future, but let each day's work absorb your entire energies and satisfy your widest ambitions. . . . While medicine is to be your vocation or calling, see to it that you have also an avocation, some intellectual pastime, which may serve to keep you in touch with the world of art, of science or of letters. Begin at once the cultivation of some interest other than the purely professional. The difficulty is in a selection, and the choice will be different according to your tastes and training; but, no matter what it is, have some outside hobby. For the hard working medical student, it is perhaps easiest to keep up an interest in literature. Let each subject in your year's work have a corresponding outside author. When tired of anatomy, refresh your mind with Oliver Wendell Holmes; after a worrying subject in physiology, turn to the great idealists, to Shelley or Keats for consolation; when chemistry distresses your soul, seek peace in the great pacifier, Shakespeare; when the complications of pharmacology are unbearable, ten minutes with Montaigne will lighten your burden. To the writings of one old physician I can urge your closest attention. There have been, and, happily, there are still, in our ranks notable illustrations of the intimate relations between medicine and literature; but in the group of literary physicians, Sir Thomas Brown stands preeminent. The "Religio-Medici," one of the great English classics, should be in the hands, the hearts, too, of every medical student. As I am on the confessional today, I may tell you that no book has had so enduring an influence on my life. . . .

It was one of the strong influences which turned my thoughts toward medicine as a profession, and my most treasured copy, the second book I ever bought, has been a constant companion for thirty-one years.

Once more:

It seems a bounden duty on such an occasion to be honest and frank, so I propose to tell you the secret of life as I have seen the game played, and as I have tried to play it myself. You remember in one of the Jungle Stories that when Mowgli wished to be avenged on the villagers, he could only get the help of Hathi and his sons by sending them the master word. This I propose to give you in the hope, yes, in the full assurance that some of you, at least, will lay hold on it to your profit. Though a little one, the master word looms large in meaning. It is the open sesame to every portal; the great equalizer in the world; the true philosopher's stone which transmutes all the base metal of humanity into gold. The stupid man among you it will make bright; the bright, brilliant, and the brilliant student steady. With the magic word in your heart, all things are possible, and without it all study is vanity and vexation. The miracles of life are with it; the blind see by touch; the deaf hear with eyes; the dumb speak with fingers. To the youth, it brings hope; to the middle-aged, confidence; to the aged, repose. True balm of hurt minds, in its presence the heart of the sorrowful is lightened and consoled. It is directly responsible for all advances in medicine during the past twenty-five centuries. Laying hold on it, Hippocrates made observation and science the warp and woof of our art. Galen so read its meaning that fifteen centuries stopped thinking and slept until awakened by the De Fabrica of Vesalius, which is the very incarnation of the master word. With its inspiration Harvey gave an impulse to a larger circulation than he wot of, an impulse which we feel today. Hunter sounded all its heights and depths and stands out in our history as one of the great exemplars of its virtue. With it, Virchow smote the rock and the waters of progress gushed out; while in the hands of Pasteur, it proved a very talisman to open to us a new heaven in medicine and a new earth in surgery. Not only has it been the touchstone of progress, but it is the measure of success in everyday life. Not a man before you but is beholden to it for his position here, while he who addresses you has that honor directly in consequence of having had it graven on his heart when he was as you are today. And the master word is *Work*, a little one, as I have said, but fraught with momentous consequences, if you can but write it on the tablets of your hearts and bind it on your foreheads.

I have thus quoted at length from Dr. Osler himself because, while he is exhorting his students, he is at the same time revealing the innermost secrets of his heart. He is telling the secret of his great success, the reason why he was able to accomplish the wonderful work that he did, and how it was that he gained the pinnacle of fame which was his. Yes, Dr. Osler was preeminently a teacher. He would have made a wonderful preacher. He possessed to an unusual degree all the qualifications and characteristics necessary for success in this exalted calling, for so it is. He recognized and appreciated this fact, and it influenced greatly his whole career. Ever stimulating and inspiring, ever urging higher ideals, ever encouraging by his example and methods; never taking advantage of his position to humiliate a student before his fellows or his patients; never himself causing nor allowing any one else in his presence to cause unnecessary physical or mental pain or discomfort by rough handling, or the brusque, sometimes even brutal expression in the patient's hearing of opinions concerning a diagnosis of malignant or other disease with fatal or discouraging prognosis. His tactful replies to embarrassing questions of patients or of overanxious members of the family; his successful escapes from verbal encounters with neurasthenics and psychasthenics, especially women, leaving them bewildered, perhaps, but for the moment at least satisfied, are proverbial. He was always suggesting to the student new lines or investigation and work, new problems to engage his attention and activities. He was always interested in the progress made by the student in these directions, and, when anything worth while was developed, showed great interest in its prompt publication. It was just here that he displayed preeminently that quality unfortunately not universally present in teachers, namely, the insistence on the fact that whatever credit was due from the work done should belong alone to the one who did it, he taking no share in it to himself. Is it any wonder, then, that his influence on his students and associates should have had the happy effect which it did, and should have been rewarded by the development among them of teachers and masters who have since followed gratefully in his footsteps, illustrating, to a greater or less degree, in their lives and methods the principles he so eloquently preached and so faithfully practiced?

OTHER ACTIVITIES AND INTERESTS

Dr. Osler was a citizen of three countries and loyal to the best traditions of them all. He took an active interest in all the civic problems involved in this citizenship, especially those having to do with public health. Tuberculosis early engaged his thoughtful attention, and much of his best work was done here. So great was his interest in the study of this affection that the bibliographic list of his published works includes no less than forty-eight titles that have to do, either in whole or in part, with tuberculosis. In addition to this, he was the moving spirit in 1900 in the organization at the Johns Hopkins Hospital of the Laënnec Society for the special study of tuberculosis. He was a charter member of the National Tuberculosis Association and its first honorary vice-president. At all times he was to be found closely identified with the antituberculosis crusade, both in this country and in England. He was tremendously interested in all matters pertaining to hygiene and sanitation. The control of communicable diseases, pure water, a good milk supply, children's playgrounds, every movement, in fact, that had to do with improved living conditions and made for the upbuilding of humanity, found in him an ardent champion.

Attention has already been called to the fact that Dr. Osler was constantly urging students to have a hobby. His was books, old books, especially first editions. Many of his students retain vivid recollections of the delight with which he would exhibit in his own study, or at the meetings of the Historical Society, some rare old volume and fairly gloat over it as he recounted its history, gave the biography of its author and appraised its literary and scientific value with the authority of the connoisseur that he was. His collection of old books at the time of his death formed a library of great value, and along certain lines was second to none in existence. It was a source of intense satisfaction to him that his son, Revere, had inherited in large measure this same trait. At the end of his volume entitled "Aequanimitas and Other Addresses" is appended a list of books, his "Bedside Library for Medical Students," as he called it, with this bit of advice well worthy of quotation here and of thoughtful consideration and practice by every student:

A liberal education may be had at a very slight cost of time and money. Well filled though the day be with appointed tasks, to make the best possible use of your one or of your ten talents, rest not satisfied with this professional training, but try to get the education, if not that of a scholar, at least that of a gentleman. Before going to sleep, read for half an hour, and in the morning have a book open on your dressing table. You will be surprised to find how much can be accomplished in the course of a year. I have put down a list of ten books which you may make close friends. There are many others. Studied carefully in your student days, these will help in the inner education of which I speak.

The list of books is of special interest as an indication of the direction in which his literary tastes lay and the springs from which he gained inspiration and refreshment: The Old and New Testament, Shakespeare, Montaigne, Plutarch's Lives, Marcus Aurelius, Epictetus, Religio Medici, Don Quixote, Emerson, and Oliver Wendell Holmes (Breakfast Table Series).

Dr. Osler was a firm believer in the high mission of the medical profession, and in the opportunities which it affords to those of its members who are able to appreciate and take advantage of them. He was an uncompromising foe to chauvinism and its offspring, which he characterized as "nationalism, provincialism and parochialism." Especially does he inveigh against that unfortunately all too common variety that takes the form of professional jealousies and contentions among medical men, often leading to undignified and unprofessional conduct. He consistently held the position that there was no more high-minded body of men to be found than that which composed the medical profession, and that it was unseemly and unbecoming to engage in personal and professional disputes and controversies which could only tend to discredit the profession in the eyes of the public, and breed bitterness and hatred in the minds of those who indulged therein. Instead, he was always counseling against too hasty judgment of the actions of a confrère, especially as reported by a patient, however well meaning he or she might be, because so often such remarks are unintentionally misquoted and such actions misconstrued. "Never let your tongue say a slighting word of a colleague. It is not for you to judge. Let not your ear hear the sound of your voice raised in unkind criticism or ridicule or condemnation of a physician. If you do, you can never again meet that man face to face. Wait, try to believe the best. Time will generally show that the words that you might have spoken would have been unjust, would have injured a good man and lost you a friend, and then, silence is such a powerful weapon" (Thayer). Could you imagine more valuable advice for the student, or for us medical men, to receive than this? and the best part of it all was that Dr. Osler never preached what he did not practice. His own life was the best illustration of his precepts.

SENSE OF HUMOR

Dr. Osler's sense of humor, to which reference has been made before, was so fine and subtle that he was not infrequently misunderstood by his more matter-of-fact audience, "the dull, stupid public," as he was so fond of characterizing it. The most marked instance of this, perhaps, was the exploitation by the newspapers of the whole country, in fact on both sides of the Atlantic, of his facetious remarks made in his founder's day address in Baltimore on the relative uselessness of men from the standpoint of intellectual productivity, after they have reached the age of 40, and the suggestion of the use of chloroform after 60 as an easy solution of the problem of senility. The way in which the press and the country at large reacted to this innocent remark was the source of great surprise and extreme annoyance to him, and caused him to exercise more caution in subsequent public utterances. He was always most felicitous in his quotations and his similes. It was here that his keen and discriminating sense of humor found expression. His characterization and description of men and things were notorious. Listen to this classification of the various types of professors: "It was a parson," he says, "who gave the well known libelous division of doctors: (1) those that talk but doe nothing; (2) some that can doe but not talk; (3) some that can both doe and talk; (4) some that can neither doe nor talk, and these get most monie." Of professors, "The first is the man who can think but has neither tongue nor technic. Useless for the ordinary student, he, however, may be the leaven of a faculty and the chief glory of his university. A second variety is the phonographic professor, who can talk but who can neither think nor work. In the old régime, he repeated year by year the same lectures. A third is the man who has technic but who can neither talk nor think. And a fourth is the rare professor who can do all three, think, talk and work. With these types fairly represented in a faculty, the diversities of gifts only serving to illustrate the wide spirit of the teacher, the dean at least should feel happy."

Often when apparently writing in a most humorous vein, he has been the most serious in his meaning, and how often and with what delicate touch does he expose some of our human faults and foibles (Brush). Listen to this homily addressed to a class of graduating students:

> Curious odd compounds are these fellow-creatures at whose mercy you will be; full of fads and eccentricities, of whims and fancies; but the more closely we study their little foibles of one sort or another in the inner life which we see, the more surely is the conviction borne in on us of the likeness of their weaknesses to our own. The similarity would be intolerable if a happy egotism did not often render us forgetful of it. Hence the need of an infinite patience and an ever-tender charity toward these fellow-creatures; have they not to exercise the same toward us?

PRACTICAL SIDE

With all of his fondness for humor and the bright side of life, there was an intensely practical side to all of his teaching. Art for art's sake, science for science's sake, work for mere work's sake, did not appeal to him. The medical man should always be inspired and his work should have as its ultimate aim the benefit of humanity, some addition to the sum total of human knowledge, the cure of disease, the prolongation of life. "The knowledge," says he, "which a man can use is the only real knowledge, the only knowledge which has life and growth in it and converts itself into practical power. The rest hangs like dust about the brain or dries like raindrops off the stones."

HUMAN SIDE

The human side of Dr Osler was perhaps, after all, the most attractive. Dr. Welch has well said of him, "To Osler nothing human was foreign." It is a curious fact that while many praise his scholarship, his ability as a physician along practical or scientific lines, and his stimulating leadership, yet all, with one accord, unite in acclaiming him as a man among men. This

factor played a large part in the phenomenal success which has crowned his career. His habit was essentially peripatetic. He never remained long enough in one place to become moss-grown. He felt the need and recognized the beneficial effect on his work of new surroundings and fresh pastures. He never bothered himself about the past, still less about the future; the present alone interested him. "Sufficient unto the day is the evil thereof" was the text from which he preached many an effective sermon.

> Time past is gone, thou canst not it recall;
> Time present is, employ the portion small;
> Time future is not and may never be;
> Time present is the only time for thee.

HOME LIFE

The home life in the Osler household was ideal. Every one will testify to this fact who was fortunate enough to have enjoyed its unostentatious hospitality. The "Chief," always interesting, seemed even more so in the unconventional freedom of the home atmosphere. Lady Osler made a charming hostess. Many a homesick student will recall with pleasure her gracious kindness to him, a perfect stranger, and her spontaneous and genuine cordiality which made him forget himself and feel at once at home. Those student Saturday night conferences in the Osler home, with their close and intimate contact with Dr. and Mrs. Osler, and the stimulus received there to higher planes of thought and action are never to be forgotten by the happy participants.

To Dr. Osler more than to any one else was due the inauguration of the student conferences in the homes of the professors and instructors. It was in these gatherings that the teacher came to know the students personally. They formed the basis for the intimate and lasting personal friendships and for the *esprit de corps* which has always been a distinguishing characteristic of the Johns Hopkins school.

INFLUENCE

As to the influence of Dr. Osler's personality exerted through his students, and the effect of his teaching and writings on medical thought and education, sufficient time has not as yet elapsed to admit of a just appraisal. This must be left for a future generation, with a better perspective and a longer time to judge of results. However, in passing, attention is called to the fact that this meeting tonight is but another evidence of the extent and character of Dr. Osler's influence, working through his former students toward better things in medicine. It augurs well for the future of the profession in Los Angeles that so much of his spirit is still alive and active in this community. May the fire thus kindled ever be kept burning brightly by you, his former pupils and your associates and your successors forever, to act as a beacon light, guiding the members of our beloved profession toward higher aspirations and more unselfish devotion to the service of our fellow men. I, with a thorough realization of my inability to judge as to the question of the permanent place that will be occupied by Dr. Osler in medical history, nevertheless venture to express as my opinion that, when the history of the time in which he lived comes to be written, the record of Dr. Osler's achievements as the foremost physician of his day, as investigator, teacher, author, historian and man will fill a large place.

His insistence on the fundamental relation of accurate observation and analysis of facts to the proper study of medicine, first enunciated in the French school in the early days of the last century, and later emphasized and popularized by Louis, did much to bring about its firm establishment in our system of medical education. The emphasis that he placed on historical, biographic and literary, as well as the strictly scientific subjects, has greatly broadened the outlook and widened the horizon of the medical men. His influence ever tended to humanize the study of medicine and to make it more fully meet the needs of humanity, and so fulfil its high mission.

Of Dr. Osler's literary style, it has been well said that his own estimate of some of the old writers may, with equal truth, be applied to him: "a rare quaintness, a love of odd conceits, and the faculty of apt illustration." There is a clarity of diction, a charm of expression, an epigrammatic style in all his writings that stamp them with a certain individuality that must leave a lasting impression on medical literature. Indeed, it can already be observed in the writings of some of his former pupils.

If one were to enumerate those traits of Dr. Osler's character most likely to affect permanently medical thought and practice, one would mention industry, accuracy, honesty, kindness and humanity, as perhaps the most prominent. In his writings and teachings, he ever dwelt on these cardinal virtues, with an intensity that could not fail to have a lasting and marked effect on his students. While in practice, always more potent than precept, he was a living and shining example known and read of all men, of the doctrines he professed. One of Dr. Osler's students, from among those best able to judge gives this estimate of his work:

> No one has written more systematically or more consistently of the changes underlying the manifestations of disease; no one has recognized more clearly the boundary line between the known and the unknown, or sifted more judiciously and unerringly the truth from error.[1]

Not the least of Dr. Osler's virtues was his ability to harmonize opposing factions and opinions among medical brethren and associates. He was ever, whether in Canada, the United States or England, to be found using his great influence in the bringing together of warring factions, in clearing up misunderstandings, in bringing harmony of action to opposing interests. This was equally true of individuals as of organizations, medical schools and societies, as well as of medical associates. Himself a friend to every one, a supporter of no special faction, identified with no party, he was always in a position to suggest a middle ground on which both sides to any controversy could find a common meeting place. He could do this because he had the confidence equally of both parties to the strife, who, for this reason, and knowing full well his disinterestedness, were usually ready to listen to his counsel and follow his advice.

It was a curious coincidence, the irony of fate, which has been so often observed among medical men, that Sir William should himself fall a victim to one of the diseases that had engaged his especial attention and had been the subject of so much study and thought on his part for so many years. He contracted pneumonia, that disease which he was wont so often to characterize as "the old man's friend," because it pro-

1. MacCallum.

vided a comparatively quick and painless exitus, especially for those of advanced years. With characteristic cheerfulness, a few days before his death, he sent to his friends in Johns Hopkins a Christmas message of hope and cheer, in which he said he was making a good fight. But all the while he himself, either by intuition or with his wonderful insight into disease processes, must have known and felt that the end was approaching; for, shortly before his death, he wrote thus to an intimate friend: "The harbor is not far off and such a happy voyage, such dear companions all the way, and the future does not worry. It would be nice to find 'Isaac' there with his friends—Isaac Walton and others." [2]

His system of philosophy, which he had consistently preached and so faithfully practiced throughout a busy and fruitful life, had served him to the end. In the hour of triumph and success, it had helped him to bear with becoming humility all the honors that were heaped on him by an appreciative and admiring profession on both sides of the Atlantic. In the hour of trial, when grief-stricken and crushed to earth by the greatest of all sorrows that could have come to him, the untimely death in the World War of his only son, a youth of unusual promise, the pride and joy of his heart, he was still able with a supreme effort to manifest that "equanimity" about the virtues of which he had so eloquently discoursed in times gone by. Even "in the valley of the shadow of death," as indicated by his message to his friend just quoted, this quality of equanimity, and "the rod and the staff," with which he had been made familiar from his youth up, combined to comfort him.

CONCLUSION

Thus ended a life crowded so full of good deeds and noble aspirations that there never was any room for the low, the base or the sordid. So busy was he trying to wrest from Nature the keys to some of her hidden mysteries, so filled with his love of humanity, so understanding of all of its weaknesses, so appreciative of its strength, so ready to extend a helping hand to any one in need, so overflowing with hope and good cheer that it continually radiated from his presence. Small wonder, then, that he was the most loved of men. He was the embodiment in his own person of "Luke, the beloved physician" of Holy Writ, with which he was so familiar and which he loved to quote, and continually did quote with such happy effect. Thus he lived and thus he died, true to himself, true to his philosophy, true to his traditions, having reached that height for which true men have ever striven and will continue to strive, and which it is granted comparatively few to attain, where it can be truly said of each, "He added something to the sum total of human knowledge, he left the world better for having lived in it."

Nor sun, nor moon, nor stars can shed more light
on humankind than one grand life.

1300 Eutaw Place.

2. "Isaac" was the nickname that Dr. Osler used for his son, Revere, because he was so fond of fishing and kindred pursuits.

Mental Health Maintenance.—In the field of mental hygiene, the maintenance of mental health begins where the prevention of mental disease leaves off. The prevention of mental disease usually leads to problems in eugenics and heredity, while the problem of mental health maintenance is largely a matter of environment and individual initiative, the latter after one has reached the age of accountability.— R. R. Spencer, *Nation's Health* **3**:540 (Oct.) 1921.

TELANGIECTATIC SPLENOMEGALY

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In the classification of disease, it is desirable, whenever possible, to separate inflammatory from neoplasmic processes, and in many instances this may be done with certainty. There is, however, a formidable list of diseases in which inflammatory and neoplasmic features are combined in such fashion as to necessitate the promulgation of an intermediate group, to be included in which are Hodgkin's disease, mycosis fungoides, Cohnheim's pseudoleukemia, Kaposi's lymphodermia perniciosa, the true leukemias, Sternberg's leukosarcoma, Gaucher's splenomegaly, certain varieties of lymphosarcoma, solitary and multiple benign giant-cell growths of bone, the monolithic and generalized forms of Paget's disease of the bones, and exophthalmic goiter, all of which present characteristics of structure or behavior which are neither in consonance with the familiar conception of an inflammatory process nor frankly neoplasmic. For example, the histologic changes in Hodgkin's disease bear a resemblance to those of tuberculosis on the one hand, and to a malignant connective tissue tumor on the other, while the distribution of lesions in the liver, kidney, bone marrow and other tissues not customarily included in the lymphoid series is comparable to that of a metastasizing tumor, but is also explicable on the basis of inflammatory hyperplasia of preexisting lymphomatous foci.

In mycosis fungoides the ulcerative lesions in the skin are associated with changes in the lymph nodes that are of two varieties. In one form the nodes are sclerotic, the process falling into the category of a chronic productive inflammation, while in the other form they exhibit hyperplasia of lymphoid cells resembling the changes in lymphosarcoma, and in this variety of mycosis fungoides life is not infrequently terminated with the symptoms of acute leukemia. In these circumstances the lymphoid cells in the blood represent, as it were, circulating metastases. In the same way the true leukemias may be interpreted as the outward expression of circulating metastases, derived, as the case may be, from the bone marrow or from hyperplastic lymph nodes. In Kaposi's lymphodermia perniciosa the lesions in the skin are obviously inflammatory, while the hyperplastic subcutaneous lymph nodes tend to remain localized up to a certain time, when the character of the process as a whole may change abruptly and life be terminated as an acute leukemia. Of Sternberg's leukosarcoma much the same may be said, namely, that the original focus of lymphoid hyperplasia tends to remain stationary for an indefinite period, finally pouring its cells into the blood in such numbers as to constitute an acute leukemia. In Gaucher's splenomegaly the presence of characteristic large rounded cells in the spleen, liver, bone marrow and lymph nodes suggests a neoplasmic process, and yet the behavior of the disease throughout its course would appear to negative such an interpretation.

It is obvious that the subject might be elaborated into a discussion of length. The little that has been said, however, suffices to indicate that there is a point midway between inflammation and neoplasia at which certain diseases meet, and it tends to emphasize the frequently neglected fact that inflammation and neoplasia share many features in common.

It is my purpose in this paper to describe a disease characterized by great enlargement of the spleen due to the presence of proliferating endothelial cells, or angioblasts, which proceed to the formation of new capillary channels, these in turn dilating to form telangiectases, and by related or identical histologic alterations in other parts, notably in the liver, kidneys, bone marrow and lymph nodes. The distribution of the lesions as a whole is comparable to those of Gaucher's disease, that is to say, in both conditions the spleen is enlarged, and secondary hyperplastic changes of the same type as those encountered in the spleen are to be found in the liver, lymph nodes and bone marrow. In Gaucher's disease, however, the unit of hyperplasia is a large, round cell which, although it is of characteristic morphology, is of uncertain derivation and destiny, while in the telangiectatic splenomegaly here described the proliferating unit is an endothelial cell that represents the precursor of an embryonal capillary blood vessel. Beyond this, the two diseases present nothing in common except that the telangiectatic splenomegaly also belongs in that congregation of diseases in which inflammatory and neoplasmic features are so intimately associated that sharp distinction is impossible.

REPORT OF CASE

History.—A man, aged 75, a carpenter, who was admitted to Bellevue Hospital, April 20, 1921, and who died seven days later, had complained of nothing in particular other than a persistent, dull, aching pain under the left costal margin that had been present for a period of about three and one-half months.

Examination.—Physical examination revealed beneath the ribs on the left side, corresponding to the position of the spleen, a mass the edge of which was rounded and reached to the level of the umbilicus and as far forward as the midsternal line. The mass moved with respiration and was extremely tender to the touch and perfectly smooth. Beneath the skin covering the right pectoral muscle, just below the shoulder, were two pea-size nodules which were freely movable. In the right upper quadrant of the abdomen two larger but otherwise similar masses were to be felt. None of these were tender. The skin covering them was greenish yellow but, after palpation, became hemorrhagic within a few hours. On the day before death the skin of the anterior abdominal and thoracic walls suddenly exhibited an extensive network of minute bluish or bluish-red, intercommunicating streaks which corresponded, apparently, to congested and dilated capillaries.

The white blood cells numbered 5,400; the differential count was: polymorphonuclear leukocytes, 69 per cent.; lymphocytes, 20 per cent.; eosinophils, 1 per cent.; hemoglobin, 80 per cent.

Necropsy Findings.—Inspection of the body revealed nothing worthy of note other than the presence of the subcutaneous nodules already referred to in the summary of the clinical history, and the network of bluish lines in the skin of the abdomen and chest.

When the abdomen was opened, the lower edge of the spleen came into view 10 cm. (4 inches) below the ribs on the left side. The organ was removed with ease. It was massively enlarged, measuring 26 by 14 by 6 cm. (10 by 5½ by 2¾ inches) and weighed 1,130 gm. (2½ pounds). It was noticeably soft; in fact, its consistency gave much the same impression as that of a huge, saturated sponge. The shape of the spleen was perfectly preserved. The capsule was smooth and thin. Seen through the capsule, the organ presented a reddish, finely speckled appearance. On section, the organ cut readily. The cut surface was smooth and grayish-red, and scattered through it were innumerable rounded, oval, angulated or splotch-like, bluish-red areas, varying in size from that of the head of a pin to that of a small split pea. Between them the pulp tissue was abundant, soft and grayish-red. The malpighian bodies could not be differentiated. The vessels at the hilum were intact.

The kidneys presented the naked-eye changes incident to a mild degree of chronic interstitial nephritis. In the right kidney, immediately under the capsule, were a half dozen or more bluish, spider-like bodies which measured 1 or 2 mm. (1/25 or 2/25 inch) in breadth and 0.5 cm. (3/16 inch) in length and were depressed below the surface. The liver was enlarged, opaque, pinkish and friable, but no nodules were visible in it. The thoracic and abdominal lymph nodes showed no noteworthy naked-eye changes. Hyperplastic hemolymph nodes were specifically sought for, but none were found. The bone marrow of the lower half of the right femur was reddish at the periphery and yellowish at the center. When incision was made into the nodules in the skin of the upper portion of the chest and in the anterior abdominal wall on the right side, they were found to consist of pea-size, dull reddish, succulent-looking collections of tissue which, to the naked eye, presented an appearance not to be distinguished from that of the cut surface of the spleen.

Histologic Examination.—On microscopic examination of the spleen, one was immediately confronted by two facts: first, that the structure was readily recognizable as the spleen and, secondly, that it was provided with an extraordinary number of vascular channels distended by red blood cells, these channels varying in size from those with lumina of negligible dimensions to sinuses that filled or even transcended the entire low-power field of the microscope. There was nothing in the microscopic appearances to suggest a neoplasm. On the contrary, one was likely immediately to receive the impression that the changes were of the nature of an inflammatory reaction. The malpighian follicles, as such, were not discernible. Occasionally there was to be seen, however, a small hyaline arteriole which represented, no doubt, the remnants of a follicle. The pulp showed an abundance of cells which were either distributed diffusely or arranged in islands, the latter at first glance bearing a resemblance to the malpighian follicles. On close examination, however, it was apparent that these cells were noticeably larger than those normally present in the splenic follicles. They were moderately chromatic, plump, rounded or oval, sometimes polyhedral in shape, depending on the angle from which they were viewed, and on the amount and arrangement of the cytoplasm, sometimes spindle-shaped. Both in the pulp spaces and in the insular collections, they frequently tended to arrange themselves about a slitlike or rounded lumen, the whole obviously representing the beginning of a young capillary vessel. In other places were better formed capillaries, filled or even distended by the same sort of cells and limited externally by endothelium with spindle-shaped nuclei. In still other instances an occasional red blood cell might be seen lying in the lumen. The larger capillaries presented varying degrees of distention by red cells up to the formation of the relatively immense caverns already described.

Microscopic examination of the small, spider-like, bluish depressions found in the cortex of one of the kidneys revealed numerous well formed, thin walled capillary vessels embedded in a delicate connective tissue reticulum, richly infiltrated with cells of the same sort as those referred to above. Each capillary vessel was limited externally by a layer of flattened endothelium, the nuclei of which appeared, on cross-section, as spindle-shaped forms. Superimposed immediately on them was a single circumferential layer of cuboidal cells each of which was provided with a rounded, moderately chromatic nucleus. In some of the lining cells, mitotic figures were to be seen. Crowding the lumen of the capillary were cells which, except for their rounded or oval shape, presented essentially the same histologic appearances as those lining the wall of the capillary. In some of these free cells mitotic figures were likewise to be seen, and among them well formed red blood corpuscles sometimes occurred. In still other places within the cellular focus large vascular channels filled or distended by red blood cells were to be found in numbers. The foci in the kidney were small and were not definitely circumscribed. On the contrary, they presented a jagged outline, the cells insinuating themselves into the intertubular connective tissues in irregular fashion.

Microscopic examination of one of the subcutaneous nodules removed postmortem revealed that the epithelial covering was atrophic. Between the surface epithelium and the underlying lymph node was a quantity of sclerotic connective

tissue. Immediately under the epithelial layer were numbers of dilated capillary vessels, in practically every one of which collections of free endothelial cells could be seen. In many instances these were arranged as circumscribed foci lying within the capillary lumen and distending it in such fashion as to cause bulging of the wall at that point and partial or complete obstruction of the lumen. In the deeper connective tissues were numerous capillaries, many of which were immensely distended, partly by free endothelial cells and partly by red blood corpuscles. Microscopic examination of the underlying lymph node revealed the presence of numerous rounded or slitlike capillary vessels which lay at or near the periphery of the node. Like the capillary vessels in the kidney, they were made up of an external layer of flattened endothelium, superimposed on which was a circumferential layer of cuboidal cells, in some of which mitotic figures were to be seen—a lymph node from the same situation removed during life and fixed immediately in formaldehyd revealed the presence of vast numbers of mitotic figures. In most instances the lumina of the small capillary vessels were occupied by free endothelial cells, but in other places there were to be seen telangiectatic vessels filled or distended by red blood cells.

Microscopic examination of the liver revealed the presence of numbers of islands composed of cells of the type already referred to in the spleen and elsewhere, lying in the periportal connective tissue, while the sinusoids contained them in numbers, the cells being arranged in rows. Small telangiectases were occasionally to be seen in the periportal spaces.

The capillaries of the bone marrow, like those of the skin, showed numbers of the same cells arranged, as a rule, in rows, and frequently serving to displace the red cells. In still other places the capillaries of the interstitium were immensely distended by red blood corpuscles.

The anatomic and histologic diagnosis was: massive telangiectatic splenomegaly, profuse proliferation of the endothelium of the capillaries and blood sinuses; localized hyperplasia of capillary endothelium in the cortex of the right kidney and subcutaneous lymph nodes with telangiectatic formations; localized collections of angioblasts in the periportal connective tissues, infiltration of sinusoids and telangiectases; intravascular collections of angioblasts in the capillaries of the bone marrow and skin, with dilatation and congestion of capillaries.

COMMENT

In searching the literature, I have been unable to find a case which duplicates the one here described. There are, however, two reports which would seem to fit into the same category:

Borissowa[1] records an example of a woman, aged 52, who, during life, presented the signs of simple anemia associated with the presence of a few normoblasts and an occasional megaloblast. At necropsy, the spleen was found to weigh 1,605 gm. (3½ pounds), and microscopic examination revealed the presence in the pulp and splenic sinuses of numerous cells, the description of which corresponds to that of the cells observed in the case here recorded. The liver capillaries were distended by cells of identical appearance with those seen in the spleen, and the bone marrow contained them in the meshes of its reticulum. None of the organs, however, showed signs of telangiectases.

Another case was that of Pentmann:[2]

A woman, aged 56, had been examined by a physician at the age of 15, and told that she had an enlarged spleen. The patient stated that eight years previous to admission to the hospital the enlarged spleen began to act as an annoyance because of a dragging sensation and feeling of pain in the region of the left costal slope. At the time of admission it was found that the spleen was palpable as far down as the left inguinal region and forward to within a few finger breadths of the umbilicus. The patient exhibited marked secondary anemia. At necropsy, the spleen weighed 2,120 gm. (4 pounds, 11 ounces) and measured 29 by 15 by 9 cm. (11⅖ by 6 by 3½ inches). Scattered through its substance were numbers of brownish-red, spongelike nodules, varying in size from 5 to 6 cm. (2 to 2⅖ inches). Microscopically, these nodules were described as composed of cavernous hemangiomas, while the intervening spleen tissue presented venous sinuses filled by cells of the type of angioblasts. In the neighborhood were numbers of large mononuclear or multinuclear giant cells. The liver was enlarged and, on microscopic examination, showed cavernomatous formations, in the lumina of which were cells of the same type as those described in the sinuses and pulp of the spleen, although in the liver giant cells were more numerous and more varied in form than in the spleen itself. In addition, free endothelial cells were found scattered through the sinusoids of the liver lobules. In the marrow of the first lumbar vertebra was a solitary nodule, 1 cm. (⅜ inch) in diameter, which, on microscopic examination, was found to consist of cavernomatous tissue.

1. Borissowa: Virchows Arch. f. path. Anat. **172**: 108, 1903.
2. Pentmann: Frankfurt. Ztschr. f. Path. **18**: 121, 1915.

Although the three cases available for analysis do not correspond in all details, it nevertheless seems to me that they present certain fundamental features which warrant their inclusion in one and the same category: All of them were conceived in hyperplasia of the lining endothelium of capillaries of a closely related group of organs, namely, the spleen, bone marrow, lymph nodes and liver, the ultimate differentiation of these cells or their failure to differentiate serving to produce certain divergencies of structure in the several organs. For example, in Borissowa's case, the sinusoids of the spleen, liver and bone marrow contained cells morphologically identical with those described by Pentmann and myself as proliferating endothelial cells or angioblasts. In fact, Hedinger and Pentmann reexamined Borissowa's microscopic preparations and agreed on the structural identity of the cells in the two cases. The chief discrepancy in Borissowa's case is that the cells in question remained in an undifferentiated state, that is, they did not progress to the formation of new capillaries and, consequently, in his case the term telangiectatic splenomegaly is not applicable. Pentmann's case was also attended by profuse proliferation of the endothelial lining of the capillaries in the spleen and liver, leading to the formation in these localities of vast numbers of new capillaries. In addition, the lesion was marked by the presence of cavernomas in the liver, spleen and bone marrow, differing in this regard both from my case and that of Borissowa, in neither of which were angiomas observed.

Other minor points of difference consisted in the presence of numerous giant cells in the spleen and liver, and the occurrence of tumor-like angiomatous nodular formations in the spleen. In Pentmann's case, however, it is to be recalled that the patient is known to have had an enlarged spleen for a period of at least forty-one years, and it is quite possible that the formation of giant cells and of angiomas is to be attributed to the element of time, both processes representing an effort in the direction of development. However this may be, Pentmann expressed no doubt that the enlargement of the spleen and liver in his case was occasioned primarily by diffuse proliferation of endothelial cells of the same type as those here designated as angioblasts, and that these, following their natural bent, proceeded to the formation of new capillaries. It is likewise to be emphasized that all three of these cases involved chiefly organs that belong to the hematopoietic system—in Borissowa's and Pentmann's cases the spleen, liver and bone marrow, in my case the lymph nodes, in addition. That manifestations of the disease, however, are not necessarily confined to the hematopoietic apparatus is shown by the presence of renal foci in the case

described in this paper and by changes in the subcutaneous capillary vessels. In connection with the latter phenomenon, however, it is to be observed that the changes came on only a few hours before death and represented, therefore, an incident of doubtful significance. Finally, it may be mentioned that the only clinical factors common to all three cases are anemia with leukopenia and massive enlargement of the spleen.

CONCLUSIONS

1. There is a systemic disease characterized by extensive proliferation of the endothelium of capillaries, particularly involving organs that belong to the hematopoietic group—the spleen, bone marrow, liver and lymph nodes.

2. The most striking feature of the disease is to be found in massive enlargement of the spleen, due to profuse proliferation of the lining endothelium of its smaller vascular channels, with the production of new capillaries and the subsequent formation of telangiectases, identical or related histologic changes being apparent in the other organs named and, occasionally, in organs beyond those of the hematopoietic system.

3. In the spleen and lymph nodes the proliferative changes in the capillary endothelium appear to arise in vessels that are native to the part. In other instances the same sort of cells may be seen infiltrating and distending capillaries, notably in the skin bone marrow and liver; but whether these cells are produced in situ is not apparent.

4. The disease is neither frankly neoplasmic nor strictly inflammatory, but presents features incident to both and, perhaps, is best included in that group which occupies a position intermediate between neoplasia and inflammation, taking its place, in this regard, with Hodgkin's disease, mycosis fungoides, Cohnheim's pseudoleukemia, Sternberg's leukosarcoma, Gaucher's splenomegaly, and the like.

THE CLEAN INUNCTION TREATMENT OF SYPHILIS WITH MERCURY

PRELIMINARY REPORT *

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Inunctions have been used in the treatment of syphilis since the earliest times. In using them, the usual custom has been to leave the inunction on the part of the body to which it has been applied. The recommendation to leave the excess of ointment on the skin does not seem to have been based on actual comparisons, but on the theoretical views as to the mechanism of mercury absorption; i. e., that the mercury is absorbed mainly by inhalation, and that it may be absorbed directly through the stratum corneum of the skin.

The experiments of Wile, Elliott, Schamberg, Kolmer, Raiziss and Gavron speak strongly against inhalation as the essential mechanism. The second explanation was shown to be erroneous by the work of Neumann and Fuerbringer, who many years ago showed that, after rubbing mercury ointment into the skin of men and animals, mercury globules could be found in the hair and sebaceous follicles to about two thirds of their depth. None was found in the sweat glands except at the orifices. They concluded that these globules must be taken up from these parts, as in a few days they were decreased in number and in a few weeks entirely gone. While soluble mercury was to be found chemically in the internal organs, mercury globules were nowhere to be found internally. They concluded that the absorption took place from the rubbed places alone, for even by perfectly closing off all the lungs from this territory, mercury was found in the body. They also found that the unperforated epidermis does not absorb mercury, and concluded that the absorption of mercury took place by the influence of sodium chlorid, fatty acids and albuminates, especially through the influence of the gland secretions of the skin. If absorption is limited to the mercury that has been rubbed into the glands, the excess of mercury ointment that remains on the surface of the skin, after the rubbing is completed, can serve no useful purpose.

This gives us a valuable point in therapeutics for several reasons. The inunctions are not used by many: (1) because they are dirty and disagreeable; (2) they are liable to lead to discovery, and (3) when the preparation remains on the skin for such a length of time it is more liable to set up a folliculitis. Now, if the patient, after a thirty minute rubbing, can cleanse off what is left on the skin, none of these points come into consideration and we have an avenue of approach in the treatment of syphilis that can be used by the patient himself without fear of discovery, with no uncleanliness, with no irritation to the stomach, and with none of the attendant pain that comes from the use of mercury injections. We have felt this to be such an important consideration that we have attempted to prove our point from the clinical standpoint. For this purpose we took at random a series of forty-four patients in all stages of syphilis, though most of them were in the secondary stage.

With these patients the following technic was used under the eyes of an orderly: Four grams of the official Unguentum Hydrargyi U. S. P. was rubbed in for thirty minutes. At the end of this time all mercury remaining was thoroughly removed from the skin by the orderly by the free use of benzin and cotton. With these patients a different spot was used each night for a least six nights in order to prevent chances of irritation of the skin, and so that criticism could not be raised that mercury was being absorbed through the irritated skin. The patients were watched primarily with the desire of seeing how soon they would show symptoms of hydrargyrism, or, rather, if they would show symptoms of hydrargyrism with the same number of rubs as the average individual on whom the inunction was allowed to remain. Secondarily, a certain number with secondary syphilis were observed to note the therapeutic action of the mercury inunction following this technic. Out of forty-four patients we succeeded in getting a marked salivation and edema of the gums thirty-two times. These were the average run of patients that one sees in hospital practice, each patient receiving the routine potassium chlorate mouth wash and tooth brush treatment twice a day, the number of inunctions being 20, 17, 9, 10, 13, 5, 8, 9, 7, 17, 19, 23, 10, 13, 13, 13, 15, 17, 14, 12, 17, 18, 6, 8, 13, 13, 11, 19, 13, 13 and 16. In nine, the salivation and edema of the gums were not so marked, the number of inunc-

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tions being 9, 15, 17, 6, 18, 10 and 14, while in five there was extreme salivation and edema, probably in one of the cases being due to a special susceptibility of the drug, as it came on after the sixth inunction, while with the other patients it resulted from 22, 12, 15 and 9, respectively. For the entire series of forty-four patients the number of rubs required to produce stomatitis ranged from five to twenty-three, with a median of fifteen rubs.

By any one doing syphilis work and using mercury inunctions, it must be seen that these figures are practically the same as one usually sees in treating patients with mercury inunctions and leaving the ointment on the body after the rubbing. The average patient is usually able to take from ten to twenty inunctions before symptoms of hydrargyrism—depending partly on the susceptibility of the individual. However, the same results can be achieved, as our figures show, when the drug is cleansed from the skin after the inunction. We believe that these data show conclusively that the full effect of the ointment is secured if it is rubbed thoroughly into the skin for thirty minutes and the excess then cleansed off immediately.

If the mercury is absorbed so as to produce salivation, it must also produce the therapeutic effects of the drug. The occurrence of salivation is, of course, convincing proof of the absorption of therapeutic quantities of mercury. However, we confirmed this directly. In several of these cases with secondary eruption we did not give any arsphenamin at first, merely using the inunctions. Our first patient, a man with secondary syphilis and mucous patches, showed a positive therapeutic result after twenty rubs, with resultant salivation and slight edema of the gums. The next patient, with a maculopapular eruption, received eight rubs, when he became salivated so badly that we had to begin the use of arsphenamin and stop the mercury, at which time it had as yet had no especially positive effect on the disease. One patient, a colored man with a marked lichen syphiliticus, and fairly good teeth, had a positive result after seven rubs, at which time he was salivated so badly that we had to stop the mercury and begin arsphenamin; while another patient, a colored man with a follicular syphilid and good teeth, had a positive therapeutic result after seventeen rubs, when his gums were so badly affected that we had to discontinue the drug and use arsphenamin. Still another colored patient with a follicular syphilid was likewise salivated at the end of seventeen rubs, when we had to stop the mercury. He had had a very good result from the mercurial inunctions. This was also true of a white man with a maculopapular syphilid after eighteen rubs; while another man with a primary lesion and good teeth was salivated after six rubs so that we had to stop the mercury, the therapeutic result, of course, being as yet slight. To be sure, these patients were not cured of their syphilis by these few mercury rubs. Nevertheless, the symptoms of their disease were much benefited—certainly as much as when using inunctions according to the old technic.

CONCLUSIONS

As a result of our preliminary clinical study we believe we are justified in drawing the following conclusions:

1. In treating syphilis by means of mercurial inunctions, probably the only mercury absorbed is that part of the mercurial ointment which is rubbed into the hair follicles, and entrances of the sebaceous and sweat glands. Hence, all superfluous ointment remaining on the skin may be cleansed off immediately after the inunction without lessening the mercurial effect.

2. From forty-four clinical cases of syphilis treated by this technic, we feel that we have been able to prove this clinically.

3. As a result of our findings we feel that, in the future, mercurial inunctions need not be discarded because of the unpleasant considerations in regard to their use, namely, uncleanliness, liability of discovery, and causing of a folliculitis.

4. Mercurial inunctions following the technic that we advise are to be recommended in the treatment of syphilis as a distinct advance in the therapy of this disease.

THE EXISTENCE OF GASTRIC ULCER WITH TABES DORSALIS*

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My object in presenting a paper on this topic is to call attention to the fact that, coexistent with the easily recognized and familiar picture of tabes, we may be and probably often are treating a fully developed gastric or duodenal ulcer. Not infrequently in medicine, two distinct, clinical entities occur in the same patient at the same time. When this symbiosis of diseases is present, there is a natural human weakness, probably inherent in the best of us, to stop with self-content after recognizing the one syndrome and thus to overlook the presence of another, but equally important cause of the symptoms. This is the pyschologic frame of mind in which one recognizes a neurasthenia and thereafter attributes to the psychic disturbance all the subsequent complaints. The neurasthenia is so striking, so self-evident, that it seems causeless and unnecessary to seek further for a *raison d'être* for the remaining symptoms. However, we have all of us learned to beware of this trap, and while we may from time to time fall, with our eyes open, into error, yet experience and knowledge have taught the possibility of more than one disease being synchronously present.

In a case which shows predominant abdominal complaints, such as pain and vomiting, the discovery of an Argyll Robertson pupil or absent deep reflexes will tend ordinarily to the ready diagnosis of tabes with gastric crises, and undoubtedly correctly so. It is essential in every such case that we investigate thoroughly the possibility of a coexistent organic abdominal lesion. Such a distinction is usually made with considerable difficulty, for the complexity of the symptoms often defies solution; even with all the laboratory data that can be amassed at our right hand we remain not infrequently undecided.

Probably by far the largest percentage of cases of gastric crises of syphilitic origin are primarily diagnosed and treated as cases of pyloric ulcer, many of these patients even being operated on for such a condition. The discovery of a positive Wassermann reaction or of physical signs swings the diagnosis entirely to one of tabes dorsalis and allows the ulcer diagnosis com-

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pletely to lapse. This, I believe, may not infrequently be an error, as the exceptional experience of finding a penetrating ulcer with a fully developed tabes dorsalis may prove.

TABETIC CRISES WITHOUT DEMONSTRABLE ULCER

As an example of the difficulty encountered in analyzing the symptoms of a case wherein both conditions may be suspected, I will quote the history of a case in which, eventually, we concluded that ulcer was not present.

CASE 1.—I. B., a man, aged 42, had been married sixteen years, and had one child who was living and well. The patient asserted that he had had no previous illness. Two years before I saw him he began to suffer from attacks of sharp epigastric pains. The pains were shooting in character, sometimes cramplike, orginated in the epigastrium, and radiated to both sides of the chest anteriorly and posteriorly. The pain was associated with nausea, belching and sour eructations. Food aggravated the pain and caused vomiting; the vomiting was at no time extreme or protracted, nor was hematemesis ever present. The pain lasted for about two weeks and ceased. The constipation which began with the attack did not cease with it, but remained as a permanent symptom. A few months later the patient suffered from attacks of hiccup, such attacks beginning suddenly, lasting from a half hour to two hours, and ending suddenly.

During the last year, the patient had complained of attacks of sharp epigastric pains. The attacks lasted from one to three weeks, and were separated by short periods of relief, lasting usually only a few days. The attacks were characterized by the sudden onset of a severe epigastric pain which radiated across the chest to both sides of the back and to the lower abdomen. Nausea, belching, eructations and renewed paroxysms of singultus often accompanied the attacks of pain. The pain was aggravated by the ingestion of food, and was followed by vomiting at irregular periods after the meals.

Five months before, without warning, he suffered from a right facial hemiparesis. There was no speech disturbance or loss of consciousness associated with this paralysis.

One month before, he placed himself under the care of a physician who, regarding his case as one of gastric ulcer, fed him by means of a duodenal tube for two weeks. Little relief accompanied this form of treatment.

Physically, the patient was poorly developed and poorly nourished; he had evidently lost much weight. His pupils were irregular and reacted sluggishly to light and to accommodation; nystagmus was constantly present. He had a right facial palsy. The chest examination was negative.

Abdominal examination revealed a moderate degree of tenderness to the right of the midline in the epigastric region. This point was consistently tender on repeated examinations over the right side of the abdomen, corresponding to the tenth and eleventh somatic segments. There was an area of pronounced hyperesthesia; the area was well defined, rather sharply delimited and was easily elicited by stroking with the point of a pin. It extended dorsally, but was demonstrable over the back only with some difficulty.

The peripheral deep reflexes were present, the right knee reflex being more marked than the left. The Achilles tendon reflexes were preserved. A note on the history states that Wassermann reactions taken two years before were negative, but that similar tests of both blood and spinal fluid taken within the year showed a four plus reaction in both fluids.

In this case we are dealing with a patient who has been suffering with recurrent attacks of abdominal pain and vomiting, and who has in addition some of the earlier physical signs and the serologic reactions of syphilis. He had been regarded as a typical case of gastric or duodenal ulcer up to the time when his last examination showed a positive Wassermann reaction. Thereupon the diagnosis was completely reversed and the case was regarded as one of tabetic crises.

The diagnosis of tabes rests on the serologic reaction, the irregular pupils and diminished accommodation response and the hyperesthetic abdominal zone. Have we fully explained all our gastric symptoms?

The most common cause for such abdominal symptoms in a young man is either a gastric or a duodenal ulcer. There are, however, some important points lacking in the history. Peptic ulcers rarely run such a continuous stormy course with such short periods of interruption. The pains of ulcer have more relation to food, occur more regularly at a stated period after the meal, occur at the same time every day, are relieved by food, and this relief usually is maintained to the proximal meal. In approximately one third of all gastric and duodenal ulcers, hemorrhage takes place at some time in the form either of hematemesis or of melena. But before we can determine further this question of the existence of ulcer, it is necessary to include in our data the laboratory findings, both chemical and roentgenographic.

The secretory tests of the stomach revealed the following: In the fasting state, 13 c. c. were removed with a titer of 20 per cent. for free and 50 per cent. for total acidity. There was no food stasis; there were few bacteria, and a few cells. The Ewald test meal showed 110 c. c. at the end of one hour, of which the free acidity was 80 and the total acidity 120 per cent. There was a trace of blood quite evidently traumatic, a few red blood cells and some epithelial cells in the sediment. This test meal was repeated with approximately the same result.

The stool examinations from time to time showed a positive guaiac test. However, when one considers the continuous and very violent retching and vomiting which was taking place, it is not difficult to explain a positive Weber test in the stool.

The fractional test meal showed a moderate hyperacidity and a well sustained hypersecretion which in all probability was of a continuous type (gastrosuccorrhea). The fact that the patient had a hypersecretion is corroborated by the fact that the vomitus was often profuse, watery, and did not consist of food.

A critical consideration of the chemical data shows: first, that there was no food residue present such as might be expected with a pyloric stenosis or a pylorospasm due to an ulcer, and causing reflex interference with gastric emptying. Hyperacidity was present, as shown by the Ewald test meal. The fractional test meal showed both a hyperacidity and a marked hypersecretion, but with normal emptying time after one and three-quarter hours. Such an acid curve might characterize a duodenal ulcer or a lesion distal to the stomach—such as cholecystitis, or even a renal calculus. It could also be accounted for on the basis of a marked functional disturbance. A highly neurotic individual might give just such a curve, but we know from a recent survey of a series of cases showing hypersecretion [1] that syphilis—particularly syphilis of the nervous system—accounts for a large percentage of cases of continuous hypersecretion—so-called gastrosuccorrhea. Such pictures of continuous hypersecretion were described in the early eighties of the last century by writers such as Rossbach, von Leyden and Reichmann as being associated with continuous and marked nervous excitation, such as hysteria and neurasthenia. The clinical conditions, of which hypersecretion and vomiting were predominant symptoms, were described by

1. Crohn, B. B., and Reiss, J.: Am. J. M. Sc. 161:43 (Jan.) 1921.

these writers as a distinct clinical complex. They failed in great part to associate many of these manifestations with a syphilitic infection, when present.

In the case under consideration, the roentgenographic examination disclosed a degree of gastric ptosis which was inconsistent with normalcy in a man of his build, and a delayed motility of the colon. Three quarters of a barium test meal were present in the colon, even after forty-eight hours. The gastric peristalsis was normal. No defect was seen. The roentgenographer noted slight tenderness over the antrum. The roentgenographic examination failed to bear out the diagnosis of an independent gastric lesion, and, combined with the chemical examination, points rather to a functional disturbance of the stomach in the nature of a functional excitation of the secretory mechanism. The spastic delay in the colon is simply another evidence of the spastic condition of the alimentary tract. The absence of a defect in the roentgen-ray examination and the absence of further symptoms pointing to a new growth will justify us in omitting a more serious consideration of new growth as the diagnosis in this case.

Had this patient possibly visceral syphilis or, more particularly, had he syphilis of the stomach?

Syphilis of the stomach is still a disease over which there is considerable controversy and one which is still denied by some conservative observers. Such competent students, however, as Chiari,[2] Dieulafoy,[3] abroad, and Einhorn,[4] Eusterman,[5] Smithies,[6] and Downes and Lewald[7] in this country have in the last few years drawn up a very concrete and comprehensive picture of the disease. Gastric syphilis may show itself either as a localized process—as gumma; as a diffuse process involving the walls of the stomach; or by causing one of the varieties of deformity of the gastric contour, such as an hour-glass stomach or a pyloric stenosis. It is diagnosed roentgenographically by the fact that it appears as a defect similar to all intents and purposes to that shown by a gastric neoplasm. In addition, gastric syphilis is associated with a marked subacidity or an anacidity. Clinically, a mass is usually palpable in the epigastric region. The course of the disease is similar to that of carcinoma, but is to be differentiated by the therapeutic test. Like other types of visceral syphilis, gastric syphilis reacts promptly to antisyphilitic medication.

In this case we find in the roentgenograms no defect, and from the chemical standpoint (hypersecretion) we are certainly not justified in making a decision that gastric syphilis is present.

By the process of exclusion we are left to consider a disease of the nervous system as responsible for the symptoms. Gastric crises in tabes are, like other visceral crises of locomotor ataxia, a phenomenon of the early or preataxic period. In fact, when tabetic incoordination is already present, the crises have usually diminished or disappeared. These crises may take the form of laryngeal crises, pharyngeal crises, gastric, intestinal, renal crises, or crises of lightning-like pains in the extremities. They occur at infrequent intervals and last usually for a few days to a week or two, though sometimes for as short a time as a few hours. They begin suddenly and end suddenly. The gastric crises are among the most severe that may occur.

The description by George Hayem and Gaston Lion[8] is so expressive that I cannot refrain from quoting it.

> The loss of appetite is absolute; the tongue is coated and thickened; there is an invincible dislike for food, even liquids; thirst is intense, but the suggestion of the least quantity of drink only intensifies the vomiting. From the beginning, the attack has a remarkably depressing effect upon the general nervous state. A sense of fatigue is established. With the earliest pains a feeling of soreness and hurt throughout the body forces the patient to take to his bed. When the vomiting appears, the anguish becomes extreme, the suffering cruel. The facies is contracted, pallid, the extremities covered with cold sweat, and after each series of efforts the patient falls exhausted on his pillow. A series of access and of calm follows, during the latter of which he rests immobile, bent up under the coverlets, avoiding the light and the noise, resenting even the approach of the doctor. To this state of anxiety there may be added vertigo, trembling, tingling and cramps in the fingers and in the toes. When the pains are very violent, the vomiting repeated and profuse, the prostration most extreme, the extremities become cold and cyanosed and the patient presents all the appearances of collapse. Then in the full height of all the symptoms, the situation resolves itself suddenly, pains diminish; vomiting and nausea are suspended, abdominal muscles relax, and the appetite returns with a rapidity often very remarkable.

From this description one can conceive of the degree of the prostration and weakness to which this malady may lead. It has repeatedly been likened to severe seasickness, and as such will be easily understood by any one susceptible to mal de mer. Such attacks are independent in their incidence of the character or the amount of food ingested.

On the idea that the vomiting, in this case, might after all have been due to a peptic ulcer in association with tabetic crises, we caused this man to be lavaged, on several successive evenings. At all times his stomach was found to be empty—no trace of food and only variable amounts of secretion. The lavage had no effect on the vomiting. The vomiting continued in a completely fasting state just as surely as after an attempt to take food. The vomitus always consisted of watery fluid containing mucus; and, when sufficiently prolonged, contained also some bile. We should not think of the vomiting in these cases as being due to a spasm in the intestine or in the stomach, or at the pylorus due to spastic obstruction. Such spasm has not been demonstrated. The vomiting is best explained by abnormal stimuli originating in the spinal ganglions or spinal cord, which pathologic stimuli cause the vomiting and the pain. Blood in the vomitus is not unusual, but an actual hematemesis may also take place, and blood may appear in copious amounts. These are the "crises noires" described by the French writers, particularly Vulpian,[9] Fournier[10] and Charcot.[11]

On going further into the history, we find that the patient had suffered from two attacks of hiccup, one attack lasting for two hours and the other for two days. This form of crisis is similar to the attacks of pharyngeal crisis, in which from twenty to thirty sounds a minute are produced in the pharynx, the

2. Chiari: Fest. Rud. Virchow **11**: 297, 1891.
3. Dieulafoy: Bull. de l'Acad. de méd. **39**: 578, 1898.
4. Einhorn: Philadelphia M. J. **5**: 262, 1900.
5. Eusterman, G. B.: Am. J. M. Sc. **153**: 21 (Jan.) 1917.
6. Smithies, Frank: Syphilis of the Stomach, J. A. M. A. **65**: 572 (Aug. 14) 1915.
7. Downes, W. A., and Le Wald, L. T.: Syphilis of the Stomach, J. A. M. A. **64**: 1824 (May 29) 1915.
8. Hayem, George, and Lion, Gaston: Diseases of the Stomach, 1913, p. 149.
9. Vulpian: Rev. de méd. **5**: 60, 1885.
10. Fournier: Leçons sur la période préataxi que du tabes d'origin syphilitique, Paris, 1885.
11. Charcot: Leçons sur les maladies du système nerveuxe **1**: 261; **2**: 32, 1877.

sounds being of a gurgling nature, suddenly produced. The patient further had a severe attack of diarrhea a year and a half before, without nausea and apparently not to be attributed to any particular article of food. The possibilities are that this attack was in the nature of an intestinal crisis.

All in all, it is fair to consider the diagnosis in this case as one of the preataxic stage of tabes dorsalis, the gastric symptoms being attributable to typical tabetic crises. There is no positive evidence favoring a diagnosis of ulcer.

TABES AND DUODENAL ULCER

By applying the same methods, clinical and laboratory, to Case 2, a somewhat different conclusion is arrived at:

Case 2.—S. B., a man, aged 52, a furrier, had been married twenty-five years, and had four children in good health; his wife had had no miscarriages. Thirty-five years ago he had a primary indurated chancre, which lesion was cauterized. He had no secondary symptoms. His present illness began with a gradual onset of epigastric pains and pains in the right upper hypochondrium. These pains began three weeks before I saw him, were cramplike in character, radiating to the chest, were accompanied by nausea and gaseous eructations, and were relieved by food. During the last twelve days he had vomited everything ingested, vomiting taking place four or five times daily, and consisting of food, later of watery fluid, and finally of bile. He had lost his appetite, and was constipated. His weight loss had been considerable.

The patient was poorly nourished. His eyes were congested; the pupils were myotic, equal and slightly irregular, and reacted slowly to light and to accommodation. Fundus examination of the eye was normal. The examination of the chest was essentially negative. Abdominal examination revealed an involuntary rigidity over the upper right abdomen. The right rectus muscle was held spastic and rigid; the patient also evinced rebound tenderness. The knee reflexes were elicited with difficulty, the right greater than the left. The Achilles reflexes were absent. Abdominal reflexes were exaggerated. There were no areas of abdominal hyperesthesia.

The blood count showed a normal condition throughout, both as regards red and white cells. The stool was negative for blood. The Wassermann reaction, both on blood serum and spinal fluid, showed a four plus reaction.

The fractional test meal showed a marked hyperacidity as well as an extreme grade of hypersecretion. There was, in addition, a marked delay in motility, the stomach containing starch from the test meal even at the end of three hours.

The roentgenographic examination gave evidence in the fasting state of a fair amount of retained secretion. The stomach was vertical, fishhook in shape, and there was a persistent increase in the peristalsis. The duodenal bulb was consistently irregular. This irregularity was found always in the same place and always present. There was no delay of the opaque meal, the viscus emptying itself within the six hour period. Ptosis of the colon was noted, though not of a marked degree.

The patient was placed on a modified Sippy diet, and the effect of the rest in bed and dietary restriction was noted. On this conservative medical treatment the patient became free of symptoms. The pain and distress of vomiting were relieved, and after three weeks the patient was discharged from the hospital, apparently quite well.

It is not very difficult to perceive in this case that we were dealing with undoubtedly two independent conditions: (1) A condition of early tabes dorsalis, as evidenced by the changes in both pupillary and peripheral reflexes, and the positive Wassermann reaction. There was proof of the syphilitic origin as well as of the presence of the disease. (2) The abdominal disease was apparently one of duodenal ulcer, visually demonstrated by roentgenographic examination, and capable of diagnosis by reference to the character of the pain, the chemical findings in the stomach and the results of treatment. It will be seen at a glance that the pains were not similar to those observed in the previous case. These came somewhat regularly from three to four hours after meals, were worse after heavy meals, and were felt not nearly so badly after a light meal of cereal or milk products. The pains were relieved by food and not aggravated by eating; the vomiting was a secondary symptom, occurring only about ten days after the onset of the pain.

We are fully aware of the fact that vomiting is not an essential feature of tabetic crises; we may have entire crises of pain without vomiting, as well as crises of vomiting with practically no pain. In fact, Fournier [12] has described attacks of belching, pure and simple, of explosive amounts of gas as the only symptom of crises. This type of crisis is characterized by eructations of gas which are not necessarily accompanied by pain or vomiting.

The hypersecretion which is so constantly a symptom of duodenal ulcer is also a very frequent phenomenon in the gastric symptoms of tabes. Statistics in literature show about an equal number of cases with hyperacidity and with hypo-acidity. The amount of acid, or at least its strength, is less important than the amount of secretion, for many of our cases have had hyperacidity even with low acidity. The hypersecretion is an almost constant phenomenon accompanying irritation or stimulation of the vagus, the tenth cranial nerve having as its function, among others, the secretory control of the stomach. Even the delayed motility, which otherwise would be attributed to the pylorospasm accompanying the duodenal ulcer, could be simulated by a condition arising from the state of overexcitation of the spinal or cerebral nerves.

The subsequent course of this case was most suggestive. The improvement on a restricted diet and bed rest, the cessation of the vomiting, the absence of pain, and the lowered secretory curve and improved motility, are all characteristic of the phases of healing of a duodenal ulcer. We may summarize this case as one of a duodenal ulcer in a man in the early stages of locomotor ataxia. The treatment and the improvement were all instituted from the standpoint of the gastrointestinal lesion; there was no attempt to give any specific antisyphilitic treatment.

There would be little basis for asserting that these attacks of pain were due to the gastric crises of tabes. It is much more probable that the ulcer antedated and existed, independent of the syphilitic degeneration of the spinal tracts.

The literature on the subject of hematemesis in the course of tabes, particularly during gastric crises, contains references to several cases in which an organic lesion of the stomach coexisted. Vomiting of blood during a crisis is a rare complication, only about thirty instances being reported. Included in these case reports are seven fatal instances in which a necropsy was performed, and in which an ulcer was found. Of the seven cases, two were instances of perforating ulcer with peritonitis, four were benign extensive ulcers of the lesser curvature or juxtapyloric ulcers, and one was a large healed ulcer. Further, Lyon,[13] reporting on three cases of gastric crises in cerebrospinal syphilis, found constant occult bleeding in two of them and

12. Fournier: Leçons sur la période preataxique du tabes d'origin syphilitique, Paris, 1885, p. 214.
13. Lyon: Internat. Clinics, Series XXX 2: 194.

presumed that superficial ulceration was present. In addition, death due to carcinoma of the stomach occurred during a case of gastric crisis reported by Roque and Chalier;[14] and another case, presumably one of gastric carcinoma, is similarly reported by Noel.[15] Thus it is seen that organic lesions of the stomach of a benign and nonsyphilitic nature are not uncommonly found coexisting in gastric crises. Every case of crises in which hemorrhage takes place should be strongly suspected of an independent lesion.

TABES, DUODENAL ULCER AND GASTRIC HEMORRHAGE

The facts in a third case combine several factors simultaneously, namely, tabes, duodenal ulcer and gastric hemorrhage:

CASE 3.—S. D., a man, aged 40, was brought to the hospital in an exsanguinated condition, having suffered a recent and very severe intestinal hemorrhage. The history, as elicited, disclosed that he had had a gonorrheal infection eighteen years before and had syphilis for the last twenty years, with very minor treatment for the latter. About the same time that he had developed syphilis he had been sent to Saranac Lake for an incipient pulmonary tuberculosis. Four years before I saw him he was forced to return to Saranac Lake because of a recurrence of his pulmonary symptoms and the finding of tubercle bacilli in the sputum. For the last nine months he had been sexually impotent. For two or three years his gait had been so unsteady that he had been unable to walk without a cane.

About a year before, he vomited several times shortly after taking food, and had a slight pain in the epigastrium. During the last three months he had suffered from epigastric pains radiating to both sides of the lower chest. Pains occurred irregularly, according to his account; no relief from food was experienced; the pains were usually worse at night and were followed by nausea and vomiting. The vomitus contained a little food and was followed by relief. Nine days before, without warning, he vomited about a quart of bright red blood. Four days before, he had a large tarry stool. On the morning he was examined he vomited a small amount of bloody fluid, though he had no pain.

He was well nourished, with extreme pallor. His pupils were irregular and showed absolutely no reaction to light or accommodation. His knee reflexes, Achilles tendon reflexes, and abdominal reflexes were all absent. He had the signs at one apex of an old healed tuberculosis. On admission to the hospital his hemoglobin was 30 per cent., his red blood count 1,400,000 cells.

The patient received, during the two months that he lay in the hospital, two citrate transfusions of 400 c.c. of blood. During the interval between the first and second transfusions the fractional test meal was taken, and showed a subacidity, normal emptying time, but a rather marked hypersecretion. The roentgen-ray examination disclosed exaggerated peristalsis and a persistently irregular and tender duodenal bulb. Throughout his stay in the ward he was under a prolonged modified Sippy diet, on which regimen the vomiting ceased, pains finally disappeared, and he felt well. The hemoglobin gradually rose, until on the day of discharge he had 55 per cent. with a red blood count of 3,400,000 cells.

The Wassermann reaction in the blood was four plus.

There is no question in this case of the existence of syphilis, as well as of an advanced state of spinal tabes. The question is, Can we account for the hemorrhage on the basis of this clinical diagnosis? We do know that hemorrhage can take place in the persistent vomiting of crises. This has been repeatedly remarked in the literature, and is described as varying in amount from slight amounts of blood to larger amounts, such as 1 ounce or 8 ounces and even up to severe and fatal hematemesis. Sahli[16] seemed inclined to think that such hemorrhages are apparently due to the violence of the retching, and that the vomiting might actually be the cause of the gastric and duodenal ulcer which may accompany the tabetic crises. In this case it is both possible and probable that the hemorrhage was of duodenal origin and did not constitute the real *crises noires* of the French authors. In addition, we must take into consideration the fact that crises do not usually persist when the stage of the ataxia has advanced as far as has this one. In fact, the crises are generally considered as disappearing after a variable length of time. There are even some writers who consider that the occurrence of visceral crises gives a guarantee against the development of ataxia and that, conversely, ataxia rarely occurs in patients who have had crises in tabes; nevertheless, a close reading of the literature on gastric crises shows this view to be in error.

What percentage of cases of tabes dorsalis are accompanied or associated with gastric or duodenal ulcer? This would be very difficult to estimate, since, in a general hospital, neurologic cases as such are not admitted to the medical wards. All of these cases come under observation, not because they had tabes, but because they had alimentary tract symptoms.

It is possible that ulcer is a frequent concurrent of tabes. The question arises whether the involvement of the spinal cord and brain does not in some way predispose to the ulcer. It may even be suggested that the gastric ulcers are "trophic" in origin and nature (mal perforans) or that the involvement of the nervous system might predispose to ulcer formation by giving rise to hypersecretion. This hypersecretion is similarly seen in the class of cases described by Reichmann, von Leyden, Jaworsky, Rossbach and others as periodic gastrosuccorrhea, gastroxynsis, etc., all of them being characterized by a state of nervous excitation, occurring in attacks, and similar to hysteria. The hypersecretion of tabetic crises is probably of the same origin. In fact, Sahli[16] thought the attacks were caused by the hypersecretion (not hyperacidity). It has been shown that about 33 per cent. of cases of continuous hypersecretion are accompanied by ulcer; It is at least possible to believe that the ulcer is the result of a long-standing gastrosuccorrhea. May not similarly the sequence of events in these cases be syphilis, tabes, hypersecretion, ulcer?

In addition, there is a frequent disturbance of gastric motility associated with gastric crises. This fact I have observed particularly in one case of pure gastric crises of tabetic origin. Delayed motility in the stomach is not an infrequent phenomenon in nervous diseases. Recently I have seen a delay of gastric emptying lasting up to the fourth hour, and due to a spinal cord tumor in the dorsal area. Similarly I have observed a delayed emptying with profuse vomiting in a case which on necropsy showed a gliomatous tumor in the pontile area of the brain and no gastric or other abdominal lesion.

That delayed emptying predisposes to ulcer and causes retarded healing of experimental ulcers in dogs was amply proved by the convincing experiments of Friedman and Hamburger.[17]

Another variety of motility disturbance of the stomach is shown in balloon and kymograph tracings

14. Roque and Chalier: Bull. et. mém. Soc. méd. d. hôp. de Lyon **7**: 486, 1908.
15. Noel: Thèse de Paris, 1905.
16. Sahli: Cor.-Bl. f. Schweiz. Aerzte, 1885.
17. Friedman, J. C., and Hamburger, W. W.: Experimental Chronic Gastric Ulcer, J. A. M. A. **63**: 380 (Aug. 1) 1914.

of patients suffering from gastric disturbances. Included in a series of such observations made by Crohn and Wilensky,[18] there was demonstrated, in a tabetic patient, an incoordination of the hunger contractions; the contractions were irregular, of unequal height and force, and differed from those found in the normal stomach or those suffering from other gastric diseases. (While this was a single observation, it is suggestive.)

A roentgenographic picture of similar intent has been described by Carnot and Bruyère.[19] Their description of the peristaltic activity of the stomach after a crisis is one of incoordination of exaggerated peristaltic waves, a muscular hyperexcitability, an *"asynergiè remarquable,"* to use their own words.

What percentage of ulcers occurring in the presence of cerebrospinal syphilis are syphilitic ulcers? Probably a very small percentage. Von Neumann[20] estimated from postmortem statistics that 20 per cent. of patients who had syphilis had gastric ulcer. Boas[21] rightfully criticizes this statement as an exaggerated one.

Chiari[2] found at necropsy that gastric syphilis occurred in only two of 243 necropsies on syphilitics.

I have failed to find elsewhere in the literature any reference to syphilitic ulcer or gumma of the stomach in a tabetic person or particularly in one suffering from gastric crises of tabes. This undoubtedly holds good for the stomach and duodenum as well as for other visceral invasions. Some doubt may have been thrown on this remark by the observations of Warthin,[22] who demonstrated in postmortem examinations spirochetes in the heart, lungs, liver, etc., as frequent concomitants to spirochetal involvement of the nervous system. However, cardiovascular system infection was the most common finding with cerebrospinal syphilis, the abdominal viscera being less often involved.

THE NERVOUS MECHANISM OF GASTRIC CRISES

One does not find a concise and unchallenged explanation for the mechanism and paths by which tabes dorsalis or cerebrospinal syphilis produces the pain, vomiting and motor and secretory phenomena of the gastric crises. The accepted version of the lesion in tabes is that of a degeneration and atrophy beginning and involving the lateral column of the spinal cord in the lumbar and dorsal segments. That the posterior nerve roots and ganglions are involved in the process is also an accepted fact. These facts are founded on actual degenerative lesions found in these nervous tissues at necropsy on tabetic crises. The lesions involve the voluntary nervous system, causing incoordination of organs of locomotion, and disturbances in the reflex arcs, and cause the sensory symptoms, both hypesthesia and hyperesthesia. The involvement of the dorsal root ganglions undoubtedly causes the crises of pain, whether peripheral in the extremities or invading the abdominal segments. We know from the researches of Head, MacKenzie and others that visceral disease evinces itself as pain along the spinal root segments that correspond to the sympathetic innervation of the involved viscera. The reflex arc between the centripetal sympathetic fibers from the viscera to the dorsal ganglions and spinal cord, and the centrifugal spinal nerves with their surface sensitization, is a complete one. The pains of gastric crises (and the zones of hyperesthesia as well as the girdle sensations) are due to the involvement of the sensory dorsal roots in the pathologic process.

The motor and secretory disturbances in the stomach result from abnormal irritation of the areas of nervous control of the viscera. The stomach as part of the alimentary tract has a double autonomic innervation, namely, a parasympathetic or vagus and a sympathetic or splanchnic set of fibers; as such it is subject to the interplay of these two systems, known as the "law of contrary innervation." The disease must therefore either arise in the cord and affect the vagus by reflex irradiation or involve both sympathetic and vagal origins. The splanchnic system is vulnerable to the attack of the disease since the rami communicantes traverse the spinal ganglions and travel in the dorsal roots. Pathologic stimulation of these fibers may result, not only in pain directly, but reflexly may originate trophic and secretory visceral disturbances. The centrifugal medullated sympathetic fibers, whose ganglion cells occupy the lateral columns of the cord, in their involvement, participate in some of the motor and secretory disturbances seen in the stomach. This could not be otherwise, since they supply the impulses which are antagonistic to those of the parasympathetic or bulbovagal sacral system.

Actual degeneration of nerves of the splanchnic system has been demonstrated by Roux,[23] in necropsy specimens.

However, the main effect is seen in the vagus system, that bundle of fibers which is the great innervator of motor and secretory phenomena in the alimentary tract and its derivatives. The view that the vagus system is the main and actual pathway of the abnormal stimulation is held by Castelli and Pinel,[24] and is suggested as the explanation of all the phenomena by Joseph Byrne.[25] To those who have studied closely gastric secretion and peristalsis this view makes a lively appeal. Eppinger and Hess[26] assert that a condition of vagotonia is essential to the occurrence of the phenomena. It is well known that the vagus is very sensitive to all sympathetic system disturbances. Centripetal stimuli reach the midbrain and vagus nuclei by means of the intercalated or connector fibers that traverse the length of the cord connecting the sympathetic ganglions in the visceral walls, in the paravertebral chain of sympathetic ganglions and in the ganglion cells of the lateral column with the nucleus dorsalis of the tenth nerve. These stimuli either pass over connector sympathetic fibers which anastomose with fibers of the vagal nucleus, or are carried directly by afferent sensory vagus fibers to this nucleus. There, an indirect reflex arc is formed (Gaskell) and an efferent reflex stimulus is originated, by way of the nucleus ambiguus or nucleus intercalatus of Staderini, which evidences itself in motor disturbances or secretory phenomena in the larynx, esophagus, stomach or intestines.

SUMMARY

I have discussed three cases. The first was one of violent tabetic crises with symptoms very suggestive

18. Crohn, B. B., and Wilensky, A. O.: Gastric Musculatures, Arch. Int. Med. **20**: 145 (July) 1917.
19. Carnot and Bruyère: Bull. et mém. Soc. méd. de hôp. de Paris **41**: 1103, 1917.
20. Von Neumann: Specielle Pathologie und Therapie **33**: 354.
21. Boas: Diagnostik und Therapie der Magenkrankheiten, 1903.
22. Warthin: Am. J. M. Sc. **152**: 508 (Oct.) 1916.
23. Roux: Thèse de Paris, 1905.
24. Castelli and Pinel: Med. Rec. **83**: 783, 1913.
25. Byrne: New York M. J. **101**: 880, 1915.
26. Eppinger and Hess: Die Vagotonie.

of gastric ulcer, but one in which the existence of the latter complication could not be established. The second was a case of tabes with predominant gastric symptoms and an apparent duodenal ulcer. The third was an example of advanced tabes with vomiting, hematemesis and melena due to an active bleeding duodenal ulcer.

The frequency with which ulcer coexists with tabes cannot be stated. That it can so coexist and probably frequently does is most likely.

The pathogenesis of the ulcer as a complication of, or as a coincident of tabes is probably as follows: Cerebrospinal syphilis is accompanied in a large percentage of cases by gastric hypersecretion. Organic lesions of the spinal cord or brain often cause delayed gastric motility, and probably abdominal gastric peristalsis. These two conditions presumably predispose to gastric or duodenal ulcer. Syphilitic aortitis may also play a rôle.

Such ulcers as form are probably simple peptic and not syphilitic ulcers or syphilis of the stomach. The point of origin of the secretory and motor disturbances in the stomach and intestine is probably in the involvement in the pathologic process of the sympathetic fibers to these viscera in their passage through the dorsal spinal ganglions and posterior nerve roots.

It is quite possible that the finding of a gastric or duodenal ulcer in tabes is a pure coincidence, and that there is no relationship of cause and effect between the two conditions.

47 East Sixty-First Street.

ABSTRACT OF DISCUSSION

DR. ANTHONY BASSLER, New York: Various grades of gastritis may be caused by syphilis. When an ulcer is present and a plus Wassermann reaction also, the therapy of the ulcer should be considered not only in the way of diet and rest for the ulcer patient but for a syphilitic individual as well. We have found in our combined cases that approximately one third of them will apparently do well on rest and diet treatment alone. In another third the antisyphilitic treatment is required during the course of the ulcer treatment. I have seen only three cases of tabes and ulcer together, and in those three cases we accomplished nothing worth while by antisyphilitic treatment as far as the ulcer was concerned. I feel, too, as Dr. Crohn has mentioned, that mistakes are being made in diagnosing locomotor ataxia with crises as ulcer cases. I have seen not a few of those, and the differentiation even clinically is not so difficult because, without considering roentgenology and other means of diagnosis, abdominal crises present rather an irregular picture, so far as pain is concerned, coming on without any reference to meals, quality or character of food, whereas in ulcers it is different. The pain, too, is most insistent, lasts perhaps for hours or days, and suddenly disappears.

DR. J. D. DUNHAM, Columbus, Ohio: In my own observation there have not been as many cases of gastric ulcer with tabetic crises as Dr. Crohn seems to have found, in spite of the fact that for some time I have been using as a routine the Wassermann and Hecht-Gradwohl tests on all patients presenting themselves. In the last hundred cases I found 17 per cent. of neurosyphilis or vesceral syphilitis in the presence of symptoms that might indicate ulcer or appendicitis. Dr. Crohn's paper will be of great aid in calling attention to the presence of syphilis, either tabes or other varieties, and in particular to cases coming up for operation. I recall cases in which nothing was found at operation, and later observations indicated the presence of syphilis. I should like to emphasize the importance of using the Wassermann and Hecht-Gradwohl tests. I have found that the Hecht-Gradwohl test will be 4 plus with a negative Wassermann reaction when later the presence of syphilis was proved therapeutically.

DR. LOGAN CLENDENING, Kansas City, Mo.: I should like to ask Dr. Crohn whether he has observed with the roentgen ray any cases of gastric crises with intense gastric symptoms.

DR. EMANUEL LIBMAN, New York: Besides the gastric crises that may occur in association with tabes or cerebrospinal syphilis, actual lesions in the stomach of an ulcerative nature may be found. The patients can be classified, in general, into several groups. In the first place, as Dr. Crohn has pointed out, there is no reason why a patient suffering from a syphilitic spinal cord lesion should not develop an ulcer of the stomach or intestine of the ordinary type. In the second place, such an ulcer may be due to an actual syphilitic lesion in the stomach—these cases are very uncommon. In the third place, it is probable that an ulceration may occur that is due to what we term a trophic change, or secondarily to hemorrhagic erosions. Hemorrhagic erosions are not at all infrequent in patients who suffer from severe or long continued attacks of vomiting. Of course, the error in diagnosis to which Dr. Crohn has referred is not as frequent as the error made the other way, that is, in ascribing gastric symptoms to ulcer or some other form of gastrointestinal disease, when the symptoms are really due to tabes or cerebrospinal syphilis. Dr. E. C. Wood of Wilmington, N. C., has introduced a method for the purpose of making a diagnosis of tabes earlier than it is usually established. This consists in applying a tuning fork to the tibia or some other bone, and ascertaining how long the patient appreciates the vibration. As compared with the normal, this time is shortened in cases of tabes. Dr. Wood basing his conclusions on studies made at Guy's Hospital, believes that the test, as ordinarily used, is not as valuable as it is in the form which he has devised. He uses a tuning fork, which is constructed so as to vibrate at a definite speed. With such a tuning fork, he finds that the period during which vibrations are felt in cases of tabes is shorter when the tuning fork is applied to the sacrum as compared with other bones. He has found this test positive in cases in which no other objective symptoms of syphilis could be found, and has even found it present before the cerebrospinal fluid has shown a positive Wassermann reaction. In this way, a number of cases were diagnosed as examples of gastric crises in which, otherwise, an improper diagnosis would have been made.

DR. GEORGE B. EUSTERMAN, Rochester, Minn.: In an experience covering sixty-two cases of gross gastric syphilitic lesions I have occasionally found tabetics in whom there was an associated chronic benign ulcer of the stomach or duodenum. Frequently the characteristic ulcer complex antedated the gastric crises so that there was no speculation as to cause and effect. I am confident that the coincidence of chronic benign ulcer and gastric crises of tabes is not so uncommon. Several years ago a European observer reported benign ulcers found at necropsy in twelve stomachs of 100 tabetics having marked gastric disturbances. I got the impression from Dr. Bassler's remarks that the occurrence of circumscribed syphilitic gastric lesions is quite common. This has not been our experience. To date I have only three proved cases of this type, one of which was in the duodenum. By the time a diagnosis is possible or concluded, the process is found to involve a considerable portion of the stomach, therefore simulating cancer in most instances. Finally, one should not be too quick in accepting the roentgen diagnosis of a lesion in association with tabes for, as Exner has pointed out, the vagus may undergo degenerative changes in this disease, which in turn may bring about spasm defects through faulty innervation.

DR. B. B. VINCENT LYON, Philadelphia: The association of gastric ulcer and tabes has already been stressed. The two conditions can and often do exist simultaneously. I want particularly to point out certain differences in the symptoms in gastric crises. The usual triad of symptoms is nausea, vomiting and pain. But pain need not be present. It should be emphasized that there is a painless type of gastric crises. Perhaps the hardest type to diagnose is the one in which the pain symptom is omitted. Instead, we have sudden, explosive attacks of nausea but more particularly vomiting—vomiting that comes on without cause and may extend through several days or several weeks—a persistent type of severe retching and vomiting in which nothing can be retained on the

stomach, but which suddenly ceases as abruptly as it began. A few days later the patient can resume a type of diet which would be utterly inconsistent with any other gastric condition. I had occasion to review the literature on the subject a few years ago and bring it up to date, and I found extraordinary reference to the frequency of operation on patients with gastric crises in which nothing surgical was found. This is a serious diagnostic error. I came across a test described by Holmes, the so-called epinephrin test. He calls attention to it particularly as a means of differentiating the surgical cases. Having previously taken the blood pressure, if an injection of 15 mm. of 1:1,000 epinephrin is given subcutaneously, the blood pressure in gastric crises cases instead of being increased is depressed and relieves the pain. He suggested using epinephrin for this purpose instead of morphin, which too frequently masks all abdominal symptoms. Within the last month I have had occasion to use it for only the third time since I heard of it. It promptly brought the blood pressure down from 180 to 120, with relief of pain. This test is worthy of extended trial. Finally, I wish to mention the fact that fractional analysis done during the attack is likely to show hyperchlorhydria, whereas fractional analysis done between the attacks is likely to show a normal acid curve, or frequently subacidity. After all, the real diagnostic test lies in the examination of the spinal fluid. In a great many of these patients, blood infection is not demonstrable and the existence of the lesion can be made definitely positive only by spinal fluid examination.

DR. B. B. CROHN, New York: Ulcers that have accompanied tabes, when examined postmortem, proved to be a simple benign ulcer. One such case was studied by Ewald. There was present a syphilitic endarteritis, but cut sections showed no signs of syphilis in the ulcer. In the cases recorded in the literature there was nothing to show that the ulcer was syphilitic. It was simply a benign ulcer occurring in a syphilitic patient. In thirty-three cases, hematemesis accompanied the crises of tabes. In some the hemorrhage was so severe that it resulted in fatal exsanguination. In two cases the stomach was very much thickened, rather edematous, and showed superficial ulcerations. It was believed that the severe vomiting attacks caused the bleeding and death. Even a small hemorrhagic erosion would be sufficient to cause the hematemesis. Gastric crises initiate tabes in about 15 per cent. of the cases. The percentage of ulcer in the adult population of the state varies from 1.7 to 4 or 5. In may not be justifiable, therefore, to say that ulcer is more common in tabes than in general practice. The cases cited in my paper were cases of ulcer associated with tabes. When a real hematemesis occurs in the course of tabes, there is a 50 per cent. chance of an associated ulcer being present. There are some points that will help to differentiate the hemorrhage of gastric crises (vomitus niger) from the hematemesis of an accompanying ulcer. In the essential bleeding of a crisis, the hemorrhage occurs at the end of each bout of severe vomiting; the hemorrhage due to ulcer may occur at any time, before or during the spells of vomiting, and usually is more profuse and serious.

Births and Birth Rates in the Birth Registration Area.—The Department of Commerce, through the Bureau of the Census, announces that in the year 1920 there were 1,508,874 births reported within the birth registration area, which includes twenty-three states and the District of Columbia, the estimated population of this area, July 1, 1920, being 63,659,441, or 59.8 per cent. of the total population of the United States. The birth rate was 23.7 per thousand population, which is considerably higher than the rate (23.3) for the previous year, but is below the rate (25) for 1916, which may be looked on as a more normal year, as it preceded the influenza epidemic and the entrance of the United States into the war. For 1920, the highest birth rate (31.7) for the white population is found for North Carolina, and the lowest (18.3) for California; while for the colored (which includes negroes, Indians, Chinese and Japanese) the highest rates are 39.5 and 39.3, respectively, for Washington and California. The next highest rate for the colored, 31.3, is for North Carolina. The lowest rates for colored (disregarding the very low rates in a few of the New England states in which the negro population is small) are for Kansas (17.1) and Kentucky (17.6).

FRACTURES OF THE SKULL

DIAGNOSTIC AND PROGNOSTIC FEATURES*

J. W. STEWART, M.D.
ST. LOUIS

During a service at the St. Louis City Hospital extending over a period of five years, an opportunity was afforded to observe and review the records of 6,135 cases of head injuries. Of these, 617, or approximately 10 per cent., showed definite signs and symptoms of skull fracture.

These cases were studied with particular reference to age, method of injury, nature and site of the wound, nature and site of the fracture, roentgen-ray examination, state of consciousness, vomiting, pulse, spinal fluid, pupillary reaction, blood pressure, neurologic findings, operative and postmortem findings, and results.

AGE

The average age was 36 years. Males predominated in the ratio of 65:35. Taken generally, the patients of extreme ages suffered the highest mortality.

METHOD OF INJURY

Crandon and Wilson,[1] in a series of 530 basal fractures, found that 80 per cent. of the patients were injured by falling, and 20 per cent. by other accidental violence. Cushing[2] states that 60 per cent. of skull fractures are due to falls from a height; while in our series, only 33.8 per cent. were due to falls. Dennis[3] believes that fracture of the middle fossa of the base is most important, and is usually the result of a fall from a height; occasionally it is the result of being knocked down or of being run over by a vehicle or a car. Fracture of the base of the skull involving the posterior fossa is usually the result of a fall backward on the occiput, or, of a heavy weight's falling on the back of the head. LeCount and Apfelbach[4] in 504 postmortems of fractured skulls found, in the 380 cases in which the method of injury was known, approximately 57.6 per cent. due to falls, 16.4 per cent. due to street car accidents, 12.4 per cent. due to automobile accidents, and 9.8 per cent. the result of blows.

TABLE 1.—DISTRIBUTION OF METHODS OF INJURY

Cause	Cases: Number	Cases: Per Cent.	Mortality, Per Cent.
Fall	208	33.8	60.4
Automobile	147	23.8	55.8
Blow	135	21.8	28.6
Street car	58	9.4	70.6
Motorcycle	21	3.5	52.3
Train	20	3.2	85.0
Gunshot	10	1.6	60.0
Horse kick	10	1.6	30.0
All other causes	8	1.3	30.0
Total causes	617	with average of	52.19

With the increasing use of automobiles, it is to be expected that they will soon be a predominating causative factor of this condition. It can be seen at a glance that the mortality varies directly with the severity of the violence.

* From the Department of Surgery, St. Louis University School of Medicine.

1. Crandon, L. R. G., and Wilson, L. T.: Ann. Surg. **19**: 823 (Dec.) 1906.
2. Cushing, Harvey: New York M. J. **85**: 97, 1907; ibid. January, 1901; ibid. **85**: 113 (Jan.) 1907; Am. J. M. Sc. **124**: 375, 1902; Bull. Johns Hopkins Hosp. **12**: 290, 1901; Am. J. M. Sc., 1906.
3. Dennis: Interstate J. Surg., April, 1906.
4. LeCount, E. R., and Apfelbach, C. W.: Pathologic Anatomy of Traumatic Fractures of Cranial Bones and Concomitant Brain Injuries, J. A. M. A. **74**: 501 (Feb. 21) 1920.

NATURE AND SITE OF THE WOUND

A very deceptive feature of head injuries is the appearance of the external wound. This can never be taken as an index of the severity of the damage done to deeper structures. Three hundred and seventy-one, or 60 per cent., of our cases showed a laceration of the scalp. Of these, 98 were frontal, 130 parietal, 88 occipital, and 55 temporal. Lacerations were present

TABLE 2.—NATURE AND SITE OF WOUND

Nature and Site of Wound	Cases	
	Number	Per Cent.
Lacerations	371	60.0
Frontal	98	
Parietal	130	
Occipital	88	
Temporal	55	
Hematomas	237	38.3
Frontal	41	
Parietal	67	
Occipital	85	
Temporal	44	
Nondiscernible injury	9	1.4

more often in fractures of the vault, the size and extent of the laceration depending on the nature of the violence. Two hundred and thirty-seven, or 38.3 per cent., revealed hematomas of varying size. The location was frontal in 41, parietal in 67, occipital in 85, and temporal in 44. Those cases showing hematomas more frequently were purely basal or linear, involving the vault and radiating to the base.

Large hematomas very often give the false impression of depressed fracture at their center; the indurated edge giving the feel of solid bone. The differential diagnosis depends on the base of the whole swelling being superficial to the bone level.

Nine, or 1.4 per cent., of these cases showed no discernible external wound, the only evidence of trauma being, possibly, hemorrhage from the nose, ears, or mouth.

Crandon and Wilson [1] considered "bleeding from at least one ear a pathognomonic sign of fractured base in common practice. It does not of necessity imply the existence of a basal fracture; but, practically, if the hemorrhage is severe, it must come from the mucosa of the drum, or the middle ear, and hence must mean bony injury."

Ecchymosis about the orbit or mastoid area (Battle's sign) is to be taken as strong evidence of an existing skull fracture, since ecchymosis is almost always present in fractures in any other part of the body. Cases in which ecchymosis is scarcely noticeable on admission may have the typical "black eye" appearance within a few hours. The "black eye" from fracture of the skull differs from that due to external violence. The bleeding comes from within, and the discoloration is limited to the borders of the orbit; whereas the ordinary black eye shades off into the tissues of the cheek, temple or forehead. It is well to consider ecchymosis as a late sign, not usually appearing until several hours after the injury. Ecchymosis of the orbit is invariably present in basal fractures involving the anterior fossa.

It has been the practice to incise, as a routine, all lacerations and hematomas when there is any suspicion of skull fracture. On exploration of the wound, such suspicions were proved justifiable in seventeen of thirty-one cases of this series, which had been found negative by roentgen-ray examination. Fourteen of these were linear and three slightly depressed.

The more severe cases were those in which the patient's own body was the motile factor in the trauma. In this type, there were more basal fractures, and a larger percentage showed evidence of contrecoup brain injury. Thus, patients that are hurled by a fast moving force are more severely injured than patients that fall from a height, and these in turn are more severely injured than those suffering localized trauma.

In those cases in which the instrument of trauma was the motile factor, for instance, blows and falling objects, the fracture was most often of the vault, usually depressed, and the brain injury was localized to the site of fracture.

Cushing [2] and others have said: "The injury done the bone is always to be held of secondary importance. The complications on the part of the nervous system which attend injury or fracture of the skull, rather than the cranial lesions themselves, are of prime moment."

But fractures of the skull at some stage are always accompanied by intracranial manifestations, whether unconsciousness, concussion or compression.

NATURE AND SITE OF THE FRACTURE

There were 408 fractures of the vault, depressed, 198; linear, 210, and basal, 209.

Of our series, 408 were vault fractures; of these, 198 were depressed, and 210 linear. Of the linear vault fractures, approximately 70 per cent. extended to the base by the shortest route, the nearest fossa to the fracture origin being the one most commonly involved, as evidenced by operation, postmortem examination and symptoms. Two hundred and nine were basal fractures. Of those purely basal, the middle fossa was most frequently the site of the lesion.

ROENTGEN-RAY EXAMINATION

Seventy-three and one-tenth per cent. were positive and 26.8 per cent. were negative on roentgen-ray examination. Of the latter, 10.7 per cent. showed linear fracture on operation; 12.3 per cent. were diagnosed basal by other signs and symptoms; 11.6 per cent. were found to have been basal at postmortem examination, and 2.2 per cent. were proved to be fractures of the vault and were slightly depressed when the wound was explored. This shows that a negative roentgen-ray report is not conclusive evidence of nonexistence of fracture of the skull.

STATE OF CONSCIOUSNESS

On admission to the hospital, 303 patients, 49.1 per cent., were unconscious; 193, 31.2 per cent., were conscious, and 121, 19.5 per cent., were semiconscious.

TABLE 3.—CAUSE OF INJURY AND OUTCOME

Cause of Injury	No. of Cases	Deaths	Recoveries
Fall	100	85	15
Automobile	93	73	20
Blow	45	34	11
Street car	35	30	5
Train	15	14	1
Motorcycle	12	8	4
Gunshot	3	3	0

Patients were received at the hospital on an average of one and one-half hours after injury.

In the 303 cases in which the patients were unconscious on admission, the cause of the injury and the outcome are given in Table 3.

Prolonged unconsciousness or failure to regain consciousness for a period of time is a very grave sign, considering, at the same time, the cause of injury. Regaining consciousness for a period of time, followed by a lapse into semiconsciousness, is almost pathogno-

monic of intracranial hemorrhage as shown by operation. This condition can occur with a rapidly increasing edema; but the period of consciousness is longer and the secondary unconsciousness is of slower onset. Those patients that lapse into unconsciousness after a few days, or that have an irritable semiconsciousness with Kernig's and Brudzinski's sign, are found to be suffering from an edema of the cerebrum.

One patient, injured by a street car, with fracture of the vault extending to the base and with bilateral temporal edema, was unconscious for a period of thirteen days and recovered. Crandon and Wilson,[1] in the series of 520 cases, report unconsciousness in 232 patients, of whom 98 lived and 134 died; and consciousness in 288, of whom 191 lived, and 97 died.

VOMITING

One hundred and seventy-six, or 28.5 per cent., vomited on admission; eighty-seven died and eighty-nine recovered. Of the eighty-nine patients that recovered, forty-five showed sequelae (Table 4).

On the whole, patients that vomited shortly after the injury or on admission to the hospital offered a more guarded prognosis than the patients that did not vomit,

TABLE 4.—SEQUELAE IN CASES OF PATIENTS THAT VOMITED ON ADMISSION

Sequelae	No. of Cases
Seventh nerve paralysis	4
Severe mental change	4
Aphasia	2
Convulsions	9
Vertigo	12
Deafness, one ear	2
Tinnitus	11
Persistent headache	24
Meningitis	6 (died later)
Brain abscess	2 (died later)
Hemiplegia, persistent	1
Irritability and changed disposition	15
Unable to tolerate extreme hot weather	5

Eighty-four of the 176 patients that vomited showed unequal pupils, and four fixed pupils. Forty-five of the 176 showed abnormal knee reflexes.

other things being equal. There were more marked neurologic signs, and the average pulse rate was lower by 9 beats per minute than in the patients that did not vomit.

I am not in accord with the prevailing opinion that vomiting during the unconscious period is a sign of good import and an evidence of returning consciousness. Our experience has shown that in those cases in which there was vomiting with unconsciousness, the ratio of deaths to recoveries has been 3 to 1.

Crandon and Wilson,[1] in a series of seventy-eight cases of skull fracture in which vomiting occurred, report thirty-six recoveries and forty-two deaths. Our observations with regard to vomiting do not vary from those of others in regard to mortality.

PULSE ON ADMISSION

The average pulse of patients that did not vomit was 92 per minute; that of patients that vomited was 83 per minute. The average pulse was found to be higher than is usually expected to exist in cases of skull fractures; but included in the series were patients with compound and simple fractures in other bones, also patients with internal injuries and hemorrhage. Not all patients developed compression symptoms. In the latter group, i. e., compression, the pulse rate was markedly lower.

It was noted also in cases of fracture with intracranial hemorrhage, found either at operation or postmortem, that the pulse rate was higher than in compression cases due to brain edema or depressed bone.

The pulse rate averaged 9 beats slower per minute in the patients that vomited, than in the average of the patients that did not vomit. It has been observed that the pulse is usually increased in all cases in which vomiting from other causes has been noted; but this has not obtained in the vomiting occurring in the cases under discussion.

In the simpler cases, with no compression or other troublesome symptoms, the pulse was often noted to remain slow, even as low as 48 or 52, for two or three weeks. Patients with concussion and in whom no fracture was demonstrable exhibited the same phenomenon.

SPINAL FLUID

Spinal puncture was performed in 165 cases of the series, either as an aid in diagnosis or with the idea of relieving the compression to some extent. One hundred and fifty, or 90.5 per cent., had bloody spinal fluid; fifteen, or 10.5 per cent., clear spinal fluid. Of the latter, six were proved to be linear fractures; one basal, by roentgen-ray examination; two showed extradural clots at operation; two were depressed fracture of the vault without dural puncture. Six cases with clear spinal fluid were diagnosed as basal fractures on symptoms.

We have practiced spinal puncture without observing the unfortunate outcome of sudden death, as is reported by many. The patient was kept in the horizontal position during and after puncture was made, however.

NEUROLOGIC FINDINGS

Pupillary Reaction.—In a total of 209 cases of basal fracture, the pupils were equal and reaction normal, in 92 cases; unequal and reaction normal, in 94 cases, and equal, dilated and fixed, in 23 cases.

In 408 fractures of the vault, the pupils were equal, and reacted normally when the injury was on the right in 187 cases; when on the left in 117 cases. The homolateral pupil was enlarged in 64 cases when injury was on the right, and in 30 cases when it was on the left. The contralateral pupil was enlarged in 25 cases when the injury was on the right, and in 55 cases when the injury was on the left.

The pupils were equal, dilated and fixed in 17 cases when injury was on the right side, and in 13 cases when it was on the left.

In the fifty-three cases of dilated and fixed pupils, all patients died within from five minutes to two hours after admission to the hospital. Twenty-three of these were basal fractures and thirty were of the vault.

Of all patients with change in consciousness, with equal pupils, reacting normally, and in whom no other neurologic signs were demonstrable, 137 lived and thirty-two died. No neurologic signs were present, except inequality of pupils in sixty-three patients, of whom forty-six recovered and seventeen died. Pupils have been seen to change size relationship after admission.

Lovett and Monro[5] reported forty-seven deaths among fifty-four patients with nonreacting pupils. Crandon and Wilson[1] considered the pupillary condition as only a general aid in prognosis and diagnosis, reporting 131 deaths in a series of 142 cases, without pupillary reaction. Nichols[6] mentions that fixation of

5. Lovett and Monro: Med. & Surg. Rep., Boston City Hosp., 1899.
6. Nichols: Med. & Surg. Rep., Boston City Hosp., 1895.

the pupils is far more grave than inequality. In his fifty-four cases of nonreacting pupils, forty-seven patients died, and all twenty-four cases of basal fracture with nonreacting pupils were fatal.

Walton[7] reported fixed pupils in thirty-nine out of fifty-three fatal cases. As to the modus operandi of the pupillary change, he concludes that:

> Doubtless various factors play a part in producing the altered pupil in intracranial lesions, but if disorder of very simple mechanism is to be related with the production of the pupillary changes noted, the only lesion worthy of this place is disturbance, irritative or paralytic, of the intracranial fibers of the ciliospinal tract. This tract after leaving the cervical sympathetic passes into the vas with the carotid plexus, thence forward by the ophthalmic division of the fifth nerve and nasal branch, having first passed over the gasserian ganglion. The fact is established that irritation of this tract causes dilatation, and its destruction produces contraction of the pupil. He says that the generally accepted theory of paralysis of the third nerve causing dilatation of the pupil is untenable.

Rawlings[8] attributes the disordered pupil to trauma affecting the cortical center of the third nerve, and states that the pupil is first contracted and then dilated. I am in accord with the latter statement. Hutchinson[9] held that a single dilated pupil indicated hemorrhage in the middle fossa at the cranial base of the same side.

TABLE 5.—OCCURRENCE OF PATELLAR REFLEXES AND OTHER NEUROLOGIC SIGNS

Patellar Reflexes	Other Neurologic Signs	Pupils Equal		Right Larger		Left Larger	
		Recovered	Died	Recovered	Died	Recovered	Died
Equal	Absent	137	32	27	10	19	7
Equal	Present	54	17	16	28	16	21
Left increased	Present	8	6	3	6	1	8
Right increased	Present	5	8	6	23	2	7
Hyperactive	Present	13	8	7	8	5	2
Diminished	Present	14	12	4	11	5	2
Absent	Present	6	13	3	27	2	29

Wrist Sign.—Chaddock[10] says that this consists of "flexion of the wrist and simultaneous extension and separation of all the digits, upon irritation of the palmar surface of the wrist at the junction of the palm with the wrist, and just at the ulnar side of the tendon of the flexor corpi radialis and the tendon of the palmaris longus. This sign always occurs on the opposite side from the hemiplegia when both are present."

A wrist sign was present in twenty-two cases of our series of 617; of these patients, ten died and twelve recovered.

The wrist sign was on the same side as the injury in five cases. There was a bilateral wrist sign in three cases, one basal injury and two midparietal. The wrist sign was present on the side of the larger pupil in five cases, and on the same side as the smaller pupil in nine cases.

Nystagmus.—This was observed in fifty-three patients, of whom thirty died and twenty-three recovered.

Crandon and Wilson[1] reported twenty-five cases of nystagmus; twelve patients died and thirteen lived. We found in our series: nystagmus toward the injured side in twenty-three cases; nystagmus toward the side opposite the injury in eleven cases. In basal fractures, we found nystagmus to the right in seven cases, and to the left in twelve cases. Nystagmus, with unequal pupils, was present in thirty-four cases; toward the side of the dilated pupil in twenty cases, and toward the side of the small pupil in fourteen cases.

In all cases of coexisting cranial nerve palsy, usually the seventh, and nystagmus, the quick phase of the latter was invariably toward the paralyzed side. It would seem to bear some relation to disturbance in the semicircular canals on that side.

Patellar Reflexes.—These are given in Table 5.

When the increased knee jerks existed on the same side as the dilated pupil, the mortality was higher.

Bilaterally increased knee reflexes bore no especial prognostic significance. Patients with absent knee jerks showed a high mortality.

Toe Reflexes.—(Babinski, Chaddock, Oppenheim, Gordon):

TABLE 6.—OCCURRENCE OF TOE REFLEXES

Toe Signs	Fracture	Pupils Equal		Right Larger		Left Larger		Total	
		Recovered	Died	Recovered	Died	Recovered	Died	Recovered	Died
Absent	.....	137	32	27	10	19	7	185	49
Right	Left	10	5	1	5	9	8	20	18
Left	Right	8	2	8	13	2	6	18	20
Bilateral	Basal	2	8	1	17	1	6	4	30
Bilateral	Right	3	4	5	13	3	4	11	21
Bilateral	Left	7	6	0	4	0	11	7	21
Left	Right	12	3	1	4	2	6	16	13
Left	Right	12	6	3	2	2	4	17	12
Right	Basal	7	6	1	5	1	2	9	13
Right	Right	8	2	1	8	0	1	9	11
Total								111	151

With bilateral toe signs in fracture of the base of the skull, the mortality is high, thirty and thirty-four cases. When the toe sign is over the same side as the dilated pupil, the mortality is higher.

A pathologic toe sign with other pathologic reflexes in a case of fracture of the skull is a bad prognostic sign.

Paralysis.—In cases in which hemiplegia is mentioned, it occurred as in Table 7.

TABLE 7.—OCCURRENCE OF HEMIPLEGIA

Hemiplegia	Injury	Pupils Equal	Right Larger	Left Larger
Left	Right	3	1	1
Right	Left	2	5	2
Left	Left	0	0	1
Right	Right	1	1	1
Total		6	7	5

Recovered, 12; died, 6.

The longitudinal sinus syndrome, i. e., injury of the longitudinal sinus producing damage to both motor cortices with varying degrees of paralysis of a paraplegic or monoplegic nature, existed in eighteen cases of our series.

TABLE 8.—OCCURRENCE OF LONGITUDINAL SINUS SYNDROME

Injury	Pupils Equal	Right Larger	Left Larger
Right	3	2	2
Basal	0	3	2
Left	1	0	0
Midparietal	3	2	0
Total	7	7	4

Crandon and Wilson[1] consider that whatever lesson is to be learned from the reflexes in such cases, it should not be regarded as specifically diagnostic of fracture of the skull, but as resulting from violent jar-

7. Walton: Ann. Surg. 40:654, 1904.
8. Rawlings: Lancet 1:16, 23 (April 9) 1904.
9. Hutchinson, quoted in Jacobson: Guy's Hosp. Rep.
10. Chaddock, C. G.: Interstate M. J. 19:127, 1912; and personal communication.

ring of the intracranial contents, accompanied perhaps by a local bruising and by hemorrhage, either limited or extensive. Walton,[7] contrary to the impression obtained from many writers, found paralysis of the cranial nerves relatively uncommon, reporting forty-six in a series of 530 cases, with us thirty-nine in 617 cases.

BLOOD PRESSURE

Experiments have been made which show the relationship between the intracranial pressure and the peripheral arterial blood pressure.[11]

Cushing,[2] in a series of experiments in which the amount of intracranial pressure was recorded coincidentally with the blood pressure, was the first clearly to associate the blood pressure changes with the degree of intracranial tension. He was able to show in a very striking way that the arterial blood pressure is related to the intracranial pressure as a compensatory process. When intracranial pressure exceeded the blood pressure, a rise of the latter occurred, and this tended to remain slightly, but constantly, above the line of intracranial tension. The result of such a rise of blood pressure was obviously a protection against bulbar anemia.

TABLE 9.—OCCURRENCE OF MONOPLEGIA

Monoplegia	Injury	Pupils Equal	Right Larger	Left Larger
Left.....	Right	1	0	1
	Left	1	0	0
	Basal	11	0	0
Right.....	Right	1	0	1
	Left	6	2	3
	Basal	2	3	2
Bilateral.....	Right	0	0	0
	Left	0	0	0
	Basal	0	1	0

So long as this relation was maintained, disturbances of pulse and of respiration, and cerebral symptoms were in a great part absent, and death was not imminent until the blood pressure was no longer held above the pressure of the compressing fluid, forced into the cranial cavity.

He showed that this rise in blood pressure did not occur after section of the spinal cord above the origin of the splanchnic sympathetics, or after cocainization of the medulla; and by direct observation of the splanchnic vessels, he was able to see that, with the rise in blood pressure, these vessels underwent constriction. Employing a cerebral window placed in a trephine opening in the skull, Cushing[2] observed that when intracranial pressure was greater than the blood pressure, the capillaries of the brain were blanched, and the rise of blood pressure above the intracranial pressure line was coincident with a renewal of the blood supply in those vessels.

Cannon and Bullard[12] concluded by histologic examination of injured brain tissue that the dendrites and bodies of the nerve cells swell as they degenerate, and vacuoles form within them precisely as in unicellular organisms deprived of oxygen. Also they showed that there was an increased osmotic pressure within injured brain cells and a consequent taking up of water from the surrounding plasma. The swelling spreads until the blood flow is so greatly excluded from the brain that life is no longer possible. There is an interference or interruption between the arterial and venous flow, lessening of pressure behind the venous flow, with consequent venous stasis. Venous stasis results in accumulation of carbon dioxid, which produces excitation of the respiratory center and resultant Cheyne-Stokes respiration.

Cannon and Bullard[12] have said that encroachment on one-twelfth the cranial cavity by clot, foreign body or edema is incompatible with life.

Since the brain is enclosed in a firm, fibrous, nonexpansive capsule, the dura, a little compression becomes dangerous, and early trephination, with opening of the dura, is essential. The tendency is toward too small an opening, especially in edema cases, as the brain bulging closes the opening tightly. Bilateral subtemporal decompression or even large osteoplastic flaps shoud be made hurriedly under local anesthesia.

When the dura is opened, there is a marked drop in blood pressure, and stimulation is needed to tide the patient over this critical period. Injections of intravenous saline solution have given us our best results.

Compression does not develop in compound fractures with perforated dura as often as in simple fractures, and it is only the compound fractures with extensive brain damage and edema that require wider decompression.

There is a definite time beyond which operative procedures are futile in cases of compression. This is reached when the pulse rate per minute exceeds and continues higher than the systolic blood pressure, measured in millimeters of mercury.

In many cases, the fall in blood pressure was observed to be coincident with opening of the dura. This sudden fall is dangerous, and we have found that injection of intravenous saline solution is the best method of overcoming this lowering of blood pressure.

The average blood pressure in our series was: High: systolic, 140; diastolic, 77. Low: systolic, 117; diastolic, 71.

TABLE 10.—RESUTS IN SIX HUNDRED AND SEVENTEEN CASES

Cases	Number of Cases	Died		Recovered	
		Number	Per Cent.	Number	Per Cent.
Nonoperative.....	443	232	52.37	211	47.63
Operative.....	174	90	51.7	84	48.3
Total.....	617	322	52.19	295	47.81

We observed that in all cases in which operation was not performed and in which the pulse rate per minute reached or exceeded the systolic blood pressure measured in millimeters of mercury, death occurred within a few hours after the appearance of this phenomenon. In the cases in which operation was delayed longer than a few hours after this phenomenon occurred, death was invariable; while, if decompression operation were promptly performed before the elevation in blood pressure became pronounced, 80 per cent. of the patients recovered.

In every case of extradural clot with linear or depressed fracture and intact dura, the bleeding was from the middle meningeal artery. Compression symptoms of slow or late development offer a more guarded prognosis than those of sudden and early onset.

NECROPSY FINDINGS

Postmortem examinations could not be obtained in every instance because of lack of cooperation between

11. Hill: Proc. Royal Soc., London **5**: 52, 1894. Cannon and Bullard: Boston M. & S. **115**: (Aug.) 1901. Horsley: Tr. Royal Soc., London, 1892. Eyster: Bul. Johns Hopkins Hosp. **17**: 296, 1906; J. Exper. M. **8**: 565, 1906.

12. Cannon and Bullard: Footnote 11, second reference.

the institution and the coroner's office. In 60 per cent. of the cases in which necropsy was performed, there was found a lacerated dura with intradural or extradural clot, with brain edema opposite the side of the injury and in the majority of cases more or less laceration of the brain at the site of fracture. In a small percentage, there was extradural and subdural clot at the base. The middle fossa was most often the seat of basal injury.

RESULTS

It would seem to the casual observer that it makes little difference what is done, but it must be remembered that in the hopeless cases, and in the less severe ones operation is not performed, while in the cases in which the patient is not doing well and in all compound communited cases, the fractures are explored. Of the 322 patients that died, 54 died of shock; 24 died in convulsions; 17 died of meningitis; 9 died of pneumonia; 4 died of brain abscess; 4 died of delirium tremens, and 4 died suddenly and unexpectedly.

Two hundred and ninety-five patients recovered with sequelae: headaches, 51; irritability, 25; dizziness, 14; unable to tolerate heat and strong light, 10; sluggish mentality, 9; aphasia, 7; hemiplegia, 5; insanity, 4; epilepsy, 24; change mentally, 4; deafness, 3; paralysis, seventh nerve, 3; paralysis, arm, 1; paralysis, leg, 1; temporary amaurosis, 2, and hemiamaurosis, 1.

The total number that recovered, with unpleasant sequelae, was 164, or 55 per cent.

English [13] asserts that there is an element of truth in the statement, "A man is never the same after a head injury." He gives as his experience that some degree of mental impairment, though rarely sufficient to be included under the title of traumatic insanity, occurs in more than 10 per cent. of the patients.

He considered that the chief lesson to be learned from these cases was that a great bulk of the patients who suffered head injuries became absolutely well, provided they submitted to the necessary period of mental rest after the injury. Those who suffered from remote consequences were the patients who returned to their business too soon after the accident. He further asserted that intellectual workers required twice as long a time for convalescence as manual workers.

215 Lister Building.

13. English: Lancet 1: 845 (Feb. 20) 1904.

Centennial Number of "Gaceta Médica."—In honor of the centenary of the independence of Mexico, Sept. 27, 1921, the *Gaceta Médica*, the official organ of the National Academy of Medicine of Mexico, appears in gala form with numerous illustrations of historical value. The original articles are headed with a band of the national colors, and nearly every member of the academy is represented by some communication in the bulky number of 434 pages. Dr. A. B. Vasconcelos is the editor. Among the reports presented is the official verdict of the academy that not one of the three articles sent in was eligible for the prize offered by a Mexican daily for the discovery of the causal germ of Mexican typhus. Another item relates that educators from different countries of the Americas decided in a recent conference to warn students wishing to come to the United States that they must be supplied with means to support themselves during the first year, and that they should study English at home before leaving for the United States, and should plan to reach this country three or four months before the opening of the course. The Pan-American Union is now investigating opportunities for self-support for students, and candidates desiring to earn their expenses can consult the Union.

INVESTIGATION ON THE ACTIVITIES OF INFECTIVE HOOKWORM LARVAE IN THE SOIL

PRELIMINARY REPORT *

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Accurate knowledge of the activities of the infective hookworm larvae in the soil is important for the understanding of the etiology of the hookworm disease and for the improvement of control measures. Almost all of our knowledge of this phase of the life history of the hookworm has been gained from the study under laboratory conditions of larvae which had developed in cultures; for not until the development by Baermann [1] (1917) of an apparatus for isolating nematodes from the soil was it possible to study effectively the hookworm larvae in their natural environment. The use of this apparatus during the investigations in Trinidad made it possible to locate the hookworm larvae in the soil in connection with field surveys and to study their activities while in the soil. These investigations gave results so at variance with present ideas that we were forced to revise our whole conception of the life of the infective hookworm larvae under natural conditions. The present communication will bring forward in a preliminary way the results of the investigations on the loss of the sheath, the extent of migrations and the length of life of infective hookworm larvae in the soil.

Although several investigators have reported that mature hookworm larvae lose their sheaths under certain conditions, the general opinion has always been that they live normally enclosed in their sheaths, and complete their second larval molt only at the time of penetration through the skin of the final host. We were very much surprised, therefore, to find in both our field and our laboratory studies that it is a common occurrence for mature hookworm larvae to lose their sheaths while living in the soil, and to continue their lives in the unsheathed condition. For example, it was found that out of a total of 4,279 mature hookworm larvae isolated from a series of 105 soil samples, taken from an area of a sugar cane field heavily polluted by individuals infested with hookworms, only 1,808 were enclosed within the protective sheath, while 2,471 had lost their sheaths. A series of experiments to test the migrations of infective hookworm larvae in various types of soil gave similar results. In these experiments, mature sheathed hookworm larvae, from 5 to 8 days old, were placed on the surface of soil in pans, and when isolated from the soil from fifteen hours to eleven days later, numbers of them ranging from 52 to 98 per cent. were found to have lost their sheaths. Other experiments [2] of our expeditions gave the same gen-

* This paper is a preliminary report of certain phases of the hookworm investigations which were carried on in Trinidad, British West Indies, from May to September, 1921.

1. Baermann, G.: Mededeel. u. h. Genoesk. lab. te Weltvrechen, Feestbrendel, Batavia, 1917, pp. 41-47.

2. These were experiments by Drs. James E. Ackert and Florence King Payne to test the conditions under which hookworm eggs develop, and to find the extent of the vertical migrations of the mature larvae.

eral results. These findings showed that under the conditions in Trinidad during the months of June, July and August, when the daily range of temperature is from 74 to 94 F., mature hookworm larvae very commonly lost their sheaths in soil and continued to live actively.

In regard to the migrations of infective hookworm larvae in the soil, the opinion has become current that they actively move out from the place of development and that a small center may give rise to extensive soil infestation. This conception is largely founded on the microscopic study of the behavior of these larvae when mounted in water or water and soil on glass slides or small dishes. When, however, with the help of Baermann's apparatus we studied their activities while still in the soil both in the field and in laboratory experiments, it was found that they were definitely limited to the place of development unless they were mechanically carried away by the action of water or on the feet of man or domestic animals. In the field studies, negative samples were taken in a number of cases from spots, only a short distance away from centers of intense and long continued soil infestation, under conditions of soil which would seem to be favorable for the active migrations of the larvae. In a series of twenty laboratory experiments to test the extent of active migrations of hookworm larvae, it was found that in not a single case had they migrated more than 4 inches (10 cm.) from the spot where they had been placed, although they were left in the soil for periods ranging from fifteen hours to forty-two days. Several types of soil were used in these experiments, ranging from a heavy clay loam to a light coarse sand. These observations indicate that as far as their own activities are concerned, the infective hookworm larvae are definitely limited to the place of development.

It is generally believed that infective hookworm larvae may live in the soil for periods of more than a year. The observations on which this opinion is based have been made on sheathed larvae kept on moist feces or in water under laboratory conditions, usually under temperate zone temperatures. Our studies made under tropical conditions on the larvae in the soil gave entirely different results. To test the length of life of the hookworm larvae under natural conditions, an experiment was devised in the course of which examinations of the soil for the larvae in a heavily infested cane field area were made before and at intervals after the practical elimination of pollution by infested individuals. It was found that within six weeks there was an almost complete dying out of the larvae. This finding was supported by the results of a similar study carried on in a cacao grove, and by a series of thirty laboratory experiments. In these experiments three general types of soil were used: (1) clay loam; (2) sand, and (3) clay loam sod. The soil was kept constantly moistened, and there was a daily range of temperature of about 74 to 94 F. Sheathed larvae were placed on the surface of these soils, and the rate of reduction was followed. The results of these experiments showed a very rapid reduction in numbers in the first three weeks, in some cases reaching 90 per cent. of the larvae, and an almost complete dying out in about six weeks. These observations both from field and laboratory experiments show that under tropical conditions hookworm larvae in the soil die out quickly, and that an area even of very heavy soil infestation will soon become safe after the elimination of soil pollution.

NONSURGICAL DRAINAGE OF THE BILIARY TRACT

ITS USEFULNESS, DIAGNOSTICALLY AND THERAPEUTICALLY *

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It has been known for a long time that the bile ducts, as well as the gallbladder, are innervated by a set of nerve fibers comparable in their general action to the vasoconstrictor and the vasodilator fibers of the blood vessels. In 1894, Doyon [1] showed that the splanchnics are the motor pathways to the bile passages and to the gallbladder. Excitation of the peripheral end of the cut splanchnic nerves produces definite contraction of the bile ducts and the gallbladder, the contraction being so pronounced at Oddi's sphincter as to produce, practically, obstruction of the duct lumen at such point. At the same time there occurs constriction of the liver capillaries and to some extent decrease in secretion. Stimulation of the central end of the splanchnic nerve brings about relaxation of the walls of the liver capillaries, the bile ducts, the gallbladder and of Oddi's sphincter. Doyon also noted that stimulation of the central end of the vagus produced gallbladder contraction with relaxation of Oddi's sphincter, and from a study of the phenomena observed by splanchnic and vagus stimulation, considered that there was a definite interrelationship (crossed innervation) of the bile passages, gallbladder and Oddi's sphincter. Doyon further showed that irritation of the gastric and of the duodenal mucous membrane brought about relaxation of Oddi's sphincter coincident with contraction of the walls of the bile passages and of the gallbladder. Such experiments would indicate that the afferent fibers of such reflex pass upward in the vagus, while the efferent fibers to the gallbladder run in the splanchnics and reach the liver through the semilunar plexus. It cannot be said that either of these pathways is without intercommunication. Oddi later demonstrated that the center of both tracts (particularly for gallbladder irritation) lies in the first pair of nerves of the lumbar section of the cord. Oddi [2] showed that local and mechanical, as well as reflex irritation in the nerve distribution of this cord segment produced gall tract and gallbladder contraction with relaxation of the sphincter at the papilla of Vater. Such reflex could readily be brought about by irritation locally of the duodenum, particularly that portion of the duodenum in the neighborhood of Oddi's sphincter.

In 1908 and 1909, Meltzer and Auer [3] published their studies on the effects of magnesium salts, particularly the effects of such salts on the central nervous system. In these and in later studies they (Meltzer,[4] 1917) emphasized that magnesium salts, especially mag-

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* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the authors' reprints. A copy of the latter will be sent by the authors on receipt of a stamped addressed envelop.

1. Doyon: Arch. de physiol. **1**: 19, 1894.
2. Oddi: Arch. ital. de Biologie, **22**: 106, 1895.
3. Meltzer and Auer: Am. J. Physiol. **21, 23**, 1908; J. Pharmacol. & Exper. Therap. **1**: 1, 1909.
4. Meltzer, S. J.: Am. J. M. Sc. **153**: 469 (April) 1917.

nesium sulphate, had direct inhibitory or depressing action on peripheral nerve endings. This appeared to be the case, whether the magnesium salts were made to act parenterally, intraperitoneally or directly upon the mucous membrane of the alimentary tract. Meltzer pointed out that the local application of magnesium sulphate solutions to the wall of the duodenum resulted in a seemingly paradoxical phenomenon, namely, dilatation of the duodenum and relaxation of Oddi's sphincter, accompanied by bile duct and gallbladder contraction. He explained this phenomenon on the basis of "contrary or crossed innervation," pointing out that stimulation of the peripheral end of the splanchnics supplying the duodenal wall produced duodenal inhibition, but at the same time, through crossed fibers carried through the vagus, it brought about contraction of the smooth muscle in the wall of the bile ducts and the gallbladder.

While this observation was directly in accord with the observations of Doyon, made in 1894, yet the original work of Doyon was forgotten and it was assumed that Meltzer had put forth an entirely new principle. In reality, Meltzer had only correlated as a fundamental neuromuscular, physiologic, alimentary tract reflex the facts which Doyon and Oddi long previously had demonstrated with respect to one section of the alimentary tract, namely, the gall tract and the duodenum. Doyon suggested in 1894 that irritation of the duodenal mucosa by such substances as ammonia or vinegar could bring about gall tract response. But it remained for Meltzer to show that while many substances (hydrochloric acid, peptone, foreign bodies and various hyperisotonic saline solutions) could produce limited demonstration of "crossed innervation," yet, magnesium salts, owing to the peculiar properties of magnesium, could most dependably be employed to bring about such a reflex. It should be emphasized that Meltzer was working on magnesium compounds, and was not working to show, especially, that magnesium salts could be used in clinical medicine, although at the time of his last publication he pointed out that, in a diagnostic or therapeutic way, advantage might be taken clinically of this action. It remained for Vincent Lyon[5] and others to demonstrate that, when magnesium salts in hyperisotonic solution were directly introduced into the duodenum in sufficient amount to produce an acute, powerful stimulus, and were then removed (before there occurred opportunity for absorption, toxic central action or catharsis), specimens of fresh bile could be secured in a state permitting more accurate study than by any method previously known. It was further advanced by Lyon and other observers that, by the exercise of proper care and intelligent supervision, in normal people specimens of bile could be identified as coming from the various segments of the bile passages, namely, the common bile duct, the gallbladder, the hepatic duct and the liver capillaries.

The chief criticism which has been brought against metapyloric biliary tract aspiration following the intraduodenal instillation of magnesium sulphate solution appears to be directed toward the value, chemically, of magnesium sulphate as a stimulus:

(*a*) It is asserted that magnesium sulphate does not do anything which hydrochloric acid, salt solutions, peptone, food, water, foreign bodies and other substances are capable of doing. It may be said at once that magnesium sulphate may not be the most desirable agent for intraduodenal stimulation of splanchnic terminal dendrites and the stimulation of vagus fibers running to the nonstriated muscles in the walls of the bile capillaries, bile ducts and the gallbladder. There may be other agents more useful than magnesium sulphate. But of all those thus far suggested, magnesium sulphate solution has, as the basis of its employment, certain well-controlled, frequently repeated experiments in physiology. It cannot be said that other agents which have been proposed have such a basis. Scrutiny of experiments attempting to minimize the value of magnesium sulphate solution indicates that most of those experiments have been carried out incompletely, by amateurs in physiologic experimentation or by clinicians who were attempting to prove, in a few weeks, that the researches of years on the nerve-muscle reactions of the alimentary and biliary tracts are valueless. Usually such workers have attempted to show that something else which they had to suggest, often on purely empiric grounds, acted better than did magnesium sulphate.

(*b*) It has been stated that there is no necessity for the direct introduction of magnesium sulphate solution into the duodenum through a tube; that this solution introduced into the stomach produces the same effect as when used introduodenally. Certainly it is true that if magnesium sulphate is introduced into the empty stomach and the solutions are hyperisotonic to the blood salts, they are capable (through both the magnesium and sulphate radicals) of producing physiologic effects on the pyloric section of the stomach and the proximal portion of the duodenum. They leave the stomach very quickly. They thus act as local irritants to the duodenal mucosa; if they are retained but a few minutes in the duodenum, this temporary stay in the duodenum stimulates the Doyon-Meltzer reflex. If given by mouth they later act as cathartics, blood fluid depletents, and, in a limited degree, alter portal circulation. But such temporary, haphazard action of magnesium sulphate must be distinguished carefully from the clinical procedure suggested by Meltzer and Lyon. The procedure advanced by these investigators, and elaborated by others, is a procedure whereby deliberate attempt is made to take advantage of the known action of magnesium sulphate on the duodenal membranes. Such stimulus is controlled in duration by the prompt removal of the magnesium sulphate solution, and following this stimulus, material is collected from the various segments of the bile passages with a definite object. If the procedure is properly carried out, there can be but little action of the magnesium sulphate as a cathartic, as a robber of blood fluid, as an agent acting after absorption on the liver, or as a bile contaminant. Those who have suggested such hypothetic actions of magnesium sulphate have not fully recognized the physiologic basis or the clinical application of the method. Their criticism is a confession of inexperience both as physiologists and as clinicians.

(*c*) Several surgeons have stated that the method is not of service, since, at laparotomy, with a duodenal tube in position, injection of magnesium sulphate solutions have not been followed by visible contraction of the gallbladder. It is not necessary here to emphasize that these surgeons have not been operating on normal gallbladders (if they have, they would not publish the fact) and that, in extensively diseased viscera, dilatation of Oddi's sphincter could not be expected to be followed always by prompt and vigorous contraction of

5. Lyon, B. B. V.: Diagnosis and Treatment of Diseases of the Gallbladder and Biliary Ducts, J. A. M. A. 73: 980 (Sept. 27) 1919.

the weakened wall of gallbladder or bile ducts. Nor would it seem necessary to state that gross observation of the stimuli on the fine muscle bundles of the liver substance itself could not be made by these surgeons. It should be emphasized, moreover, that when magnesium sulphate is injected into the duodenum of a patient under general anesthesia, it should not be expected that physiologic function is normal. It is a well established observation that a general anesthetic can be considered successful only when it has been administered to the point of inhibition of intestinal peristalsis and total relaxation of the abdominal muscles. In such circumstances, it shows lack of appreciation of physiology to expect that any stimulus applied to the mucous membrane of the viscera will act normally. Certainly, if an anesthetized individual did react normally to stimuli, irritation of the stomach during gastric resection or gastro-enterostomy would be followed by gastric secretion, intestinal peristalsis, duodenal secretion and bile outflow. That this does not occur is within the experience of any one who has observed major abdominal surgery. It has been shown, however, that in incompletely anesthetized individuals and on dogs whose duodena have been segregated, local introduction into the duodenum of hyperisotonic solutions of magnesium sulphate, with subsequent early withdrawal, produces a definite, visible dilatation of the viscus contraction of the gallbladder and of the bile ducts, with out-pouring of bladder and liver bile. Such observations have been made by Sachs,[6] Lesner [7] and Friedenwald.[8]

(*d*) It has been stated that the dark bile (B fraction) secured during metapyloric drainage did not represent gallbladder bile, but that such biles could follow the introduction of salts other than magnesium sulphate whether they were introduced into the stomach or into the duodenum, and that dark biles were secured following magnesium sulphate injections because magnesium salts were absorbed, reacted on the bile in the liver and caused certain indefinite changes which became manifest by alteration in bile color. It is not necessary to emphasize here that those who claim that magnesium sulphate, absorbed from the alimentary tract, acts on bile in the liver, causing it to become altered and of dark color, are not familiar with the pharmacology and the chemistry of magnesium salts. Meltzer and Auer, and Mendel and Benedict [9] have definitely shown, by a large series of experiments, that magnesium salts are but rarely absorbed from the alimentary tract. When they are absorbed as such, they are excreted through the kidneys. It is doubtful whether any are excreted into the alimentary tract. Even if magnesium salts are injected intraperitoneally or intravenously, they leave the body through the kidneys and rarely if at all through the bile passages and the intestine. In our experiments we have mixed 20 per cent. solutions of magnesium sulphate with varying dilutions and colors of fresh bile, and have observed no color change after sixty-eight hours. Furthermore, it is evident that those who look for mere alterations in color of bile as evidence of disease of the biliary tract are inexperienced in the method or they are extremely superficial in the acceptance or the interpretation of diagnostic criteria. They seem to forget also that since in metapyloric biliary tract drainage the magnesium sulphate solutions are to be withdrawn within a few minutes after their injection, there is very little possibility of their admixing with bile passing downward from the upper segments of the biliary tract. Some of the most pronouncedly diseased biles which come under observation are by no means of dark color (brown, black, etc.) but are green, purulent, fluorescent, bloody, thick and mucoid or crystal clear; but, on detailed study, often enough, the specimens reveal definite bacterial, cytologic or crystalline abnormalities.

To those who have had any properly controlled experience with the method, the sequence of types of biles in normal persons or in ailing persons with limited pathology, as laid down by Lyon and others, is too constant and striking to admit of seriously considered criticism. When the bile ducts are not occluded or extensively diseased, and when the procedure is properly carried out, then the recurring picture of a small quantity of greenish-yellow or light amber common duct bile, the free flow of darker colored, cholesterin and bile pigment laden gallbladder bile to be followed quickly by clear, amber liver bile, is too familiar an occurrence to admit of any interpretation other than that three separate but intercommunicating segments of the gall tract have been emptied. In pathologic cases, this sequence may be varied greatly with respect to kind, quantity, rate of flow, duration, or accurate recognition of material from the different gall tract segments. It is such variations from the normal that go to help create a picture of disease.

It is pertinent to ask those who do not recognize the well-delimited so-called B fraction as gallbladder bile. Where, in the course of the bile passages from the papilla of Vater to the liver, can such accumulations of a special type of bile (chemically, cytologically and quantitatively) be held, if not in the gallbladder? Furthermore, it is a common observation that, following cholecystectomy or cholecystostomy, while one may secure from the biliary tract or from the liver itself large quantities of bile (even dark colored, mucoid, chemically or bacteriologically abnormal) this does not flow abruptly and freely under pressure and following definite stimulus, as does the B fraction normally, only to be then followed by a definitely different type of bile. It has been stated that, following partial or complete occlusion of the common bile duct, the introduction of magnesium sulphate into the stomach or into the duodenum results in dark colored bile passing outward through a cholecystostomy fistula. It has been contended that, as this dark bile came in the absence of a gallbladder, the appearance of dark, thick bile when the gallbladder is present cannot be regarded as bile coming from that viscus. Such criticism is a confession of ignorance both physiologically and pathologically. A physiologic magnesium sulphate stimulus to the pyloric ring or to the first portion of the duodenum can definitely excite the Doyon-Meltzer reflex. None of the observers who make such criticism have been able to show that their magnesium sulphate solutions did not reach the pylorus or did not reach the duodenum and excite such reflex. Further, it is a well-known fact that when patients who have had cholecystectomy or cholecystostomy are reoperated on, dilatation of the common or of the hepatic ducts is frequently pronounced; in fact, these ducts are often of such size as to excite comment; they act, in emergency, physiologically as places for secreted bile to be stored until there is a digestive demand for it. In these cholecystectomy or

6. Sachs: Proc. Med. Sect. Nebraska State M. A., Annual Meeting, Lincoln, May, 1920.
7. Lesner: Proc. Med. Sect. Mississippi Valley M. A., Annual Meeting, Chicago, October, 1920.
8. Friedenwald, J.: Personal communication to the authors, Feb. 24, 1921.
9. Mendel and Benedict: Am. J. Physiol. **25**: 1, 1909.

fistula cases, stimulation of the Doyon-Meltzer reflex seems quite capable of emptying stagnant, dark colored bile from dilated ducts or through a cholecystostomy fistula. Lastly, such abnormal bile, quantitatively or qualitatively, as is secured in the presence of a gallbladder incapable of emptying or in the absence of a gallbladder is of great significance, diagnostically and physiologically. The liver, not being able to avail itself of the normal storage capacity of the gallbladder, with constantly manufactured bile at hand irrespective of digestive demand, secretes a bile of higher concentration, in less amount than normally; storage space is secured by dilatation of the elastic bile ducts—seemingly from the bile capillaries outward to Vater's papilla. Such dilatations are of common observation at abdominal section. Recovery of this stagnant bile, metapylorically, is certainly of importance with respect to proof of gallbladder dysfunction or bile duct and liver stasis. No one of experience expects that this dark, freshly obtained, static bile represents gallbladder bile; it is different from quantitative, qualitative, chemical and microscopic points of view.

"PHYSIOLOGIC BLOCK" IN THE BILE-EXCRETING MECHANISM

We have selected the term "physiologic block" to describe the phenomena exhibited when the normal neuromuscular reflex concerned in bile excretion fails to function. Our meaning may be made evident by analogy. An injury to or disease of the brain, an acute psychic shock, trauma to the spinal cord by accident or ailment, or local pathologic or mechanical abnormalities of the urinary bladder may result in pronounced dysfunction of that viscus: there occurs incontinence or retention, accordingly as voluntary or involuntary neuromuscular pathways are disturbed. We feel strongly that similar breaks occur, at times, in the neuromuscular reflexes of the biliary tract and the liver. Because such reflexes are concerned with the autonomic nervous system and are not voluntary their importance and significance are no less. In the event of "physiologic block," even though the bile passages are not obstructed by calculi, adhesions, twists or kinks, intraduodenal stimulus by magnesium sulphate solutions or other agents cannot be expected to excite normal physiologic response. Consequently, difficulties are experienced in securing gall tract specimens when patients are under anesthesia or when subjects are fatigued or in dread of the procedure. Our records show this in striking fashion, particularly in respect to excitable, apprehensive Latin-Americans or psychically hyperplastic Hebrews. Of the latter class, we encountered defective response in 50 per cent of the females and in 35 per cent. of the males when, in a consecutive series, other groups of patients exhibited defective response in 17.8 per cent. of women and 18.3 per cent. of men (140 and 120 subjects, respectively).

Organic cord lesions (tabes, tuberculosis, tremor) similarly interfered with our aspirations. We had difficulties with certain patients in whom organic lesions of the stomach and the duodenum were present. In the gall tract and the liver, there exist many opportunities for local breaks or uncoordinated response to the normal neuromuscular reflexes. Disease at the papilla of Vater, in the walls of the common and hepatic ducts, in the gallbladder and possibly in the liver itself is productive of such gross or microscopic evidences of destruction that one cannot fail to appreciate hindrances to normal function, particularly muscular activity. Thus, it follows that a gall tract, especially a gallbladder, may harbor no obstructive lesion and yet even frequent attempts to stimulate its emptying by magnesium sulphate solutions or other agents fail. But if these phenomena are observed and are correlated with physical examinations and clinical histories, they certainly are of significance. The psychically unstable subject may respond normally after repeated seances; the feebly contracting musculature of an infected gallbladder or bile duct may empty at later sessions, particularly when static, thick or overdistending bile accumulations have been removed; a bile-engorged, enlarged liver shrinks beneath the costal arch. When there has occurred extensive destruction of bile tract musculature, even though ducts are freely patent, our observations show that magnesium sulphate or other agents intraduodenally introduced have little or no effect in promoting bile flow. Frequently enough have we seen distended gallbladders and ducts with paper thin walls devoid of muscle bundles, or fibrosed gallbladders and ducts, in which, in no circumstances, could one expect neuromuscular response to stimuli to occur: both muscle and nerve terminal mechanism are absent, there is "physiologic block." This form of "block" undoubtedly accounts for many failures in biliary tract aspiration in the face of nonobstructing lesions; and unless its possibility is considered and the patient studied at several sessions, the Meltzer-Lyon method will receive unwarranted criticism: the method would seem to be not at fault; rather the interpretation of the results of its application.

MATERIAL STUDIED

When this report was first contemplated, it was our purpose to present data respecting all our cases. In making an intensive study of the work, it soon became evident that we had had to spend more than a half year in learning the technical points of the procedure, in evolving a practical system of work, and in recognizing along what lines observations should be recorded in order that our facts might be susceptible of clinical interpretation. While we are still undecided in respect to many points, we feel that we have made sufficient advance to warrant the statement that we now regard metapyloric biliary tract drainage as being the most important single procedure available for the elucidation of gall tract and liver anomalies. We are just beginning to appreciate its therapeutic possibilities.

In going through our records we regret that our early observations were incomplete; this includes more than half our work. However, this admission should carry significance to those clinicians who have extolled or condemned the method after experience with a few dozen subjects. Of some 1,500 drainages on somewhat less than half that number of patients, we wish to present certain facts regarding 679 drainages or the attempted carrying through of such, in 309 individuals. This material represents our observations from Aug. 11, 1920, to April 29, 1921. There were 169 females and 140 males. The youngest patient was aged 6 years; the oldest, 69. The average age was 42.2 years. There were nineteen patients who were experiencing acute or subacute biliary tract disease; the remaining patients were chronic sufferers who appeared for relief or diagnosis of various types of digestive upsets.

Method of Work.—Our application of the Meltzer-Lyon procedure has been described elsewhere.[10] We

10. Smithies, Frank: Illinois M. J. 39: 325 (April) 1921

have but slight modifications to suggest. If the patient is studied only after an absolute twelve hour fast, with stomach and duodenum food-free, our bacteriologic and cytologic observations seem to indicate that elaborate attempts to render stomach and duodenum relatively sterile are not necessary. Our experience is in line with that of Sachs, namely, that bacterial and cytologic duodenal and gastric aspirates (from the non-retention stomach and duodenum) are similar after elaborate attempts toward rendering these parts sterile to what they were before such technic. If the nasal and oral passages are cleansed the night previous to the test day, by antiseptic gargles, nasal douches and teeth scrubbing, and the patient drinks copiously of cold water before retiring, he needs little more than teeth and mouth cleansing previous to swallowing the duodenal tube on the morning following. Tubes are, of course, sterile when passed. The normally rapid duodenal peristalsis keeps the contents of that section of the viscus relatively free from micro-organisms. This is the experience of those who have observed duodenal contents at laparotomy or who have attempted bacteriologic studies on such. Not infrequently, lavage of the duodenum or the stomach immediately preceding magnesium sulphate solution injection prevents accurate bile tract specimen segmentation and results in the loss of material which might have been studied to advantage.

In doubtful instances, the position of the duodenal tube tip should be ascertained by fluoroscopy. Since duodenal tubes are of approximately the same length but the distance from patients' teeth to papillae of Vater varies greatly, it is not possible to say that the tip is well located from the tube markings. This is an important practical point; we know of a number of so-called "failures" of the method when the duodenal tube has been coiled in the stomach or the tip down in the jejunum. The jejunum seems to be in no way stimulated by the drug, apart from such stimulus as comes from its cathartic action. Generally, similar results follow magnesium sulphate solution introduction into the stomach. We are of the opinion that those observers who attribute the effect of magnesium sulphate solutions to their cathartic action, have injected the solutions when the duodenal bulb lay in faulty position. Our experience indicates that catharsis following the magnesium sulphate solution is so unusual as to excite comment on its occurrence; the withdrawal of the solution within three minutes of its slow injection does not permit very marked intestinal stimulus—from one half to practically all of the magnesium sulphate solution injected can be recovered if patients are being supervised carefully.

The position assumed by the patient when the duodenal tube has been introduced is of importance in facilitating satisfactory work. Our observations suggest that uniformly good results occur when the patient lies in a right modified Sims' position, with thighs well flexed on the trunk, previous to the introduction of the magnesium sulphate solutions and when such position is kept during the entire procedure. Less than 2 per cent. of cases drained better when in the left modified Sims' position. Psychic inhibition seems to be prevented by having the procedure carried out in pleasant surroundings, in an atmosphere of leisurely quiet and accommodation, and when the patient is physically comfortable and mentally tranquil. Our patients commonly read books, magazines or newspapers during the sessions. Lack of such environment—as in the rush of dispensary work or when dealing with people of low intelligence—may explain many failures.

Securing of persistently acid bile fractions may occur, even when the duodenal bulb is in ideal position, and yet the A B C sequence of gall tract fractions obtain. We have observed this in eighteen drainages on twelve subjects; and strangely, the presence of acid does not always produce clouded or opalescent fractions.

RELATION OF BILIARY TRACT DRAINAGE TO FREQUENCY OF MAGNESIUM SULPHATE SOLUTION INSTILLATIONS

SPECIMENS SECURED	Number	Per Cent.
After one instillation 15% $MgSO_4$ solution	461	67.9
After two instillations 15% $MgSO_4$ solution	106	15.6
After three instillations 15% $MgSO_4$ solution	17	2.5
Total	584	86
"Spontaneous" drainage	1	0.15
SPECIMENS NOT SECURED		
Bulb did not leave esophagus	1	0.15
Bulb did not leave stomach	35	5.15
Tube knotted	2	0.29
Tube withdrawn on account of severe neck pain	1	0.15
Tube constantly vomited	1	0.15
Tube vomited (osteomalacia subject)	1	0.15
Tube imperfect	1	0.15
Profuse duodenal hemorrhage	1	0.15
Only blood-stained fluid secured	1	0.15
Bulb in jejunum	3	0.45
One instillation $MgSO_4$ solution failed	18	2.65
Two instillations $MgSO_4$ solution failed	25	3.68
Three instillations $MgSO_4$ solution failed	4	0.58
Total	94	13.85

Failure to Secure Bile Specimens.—The accompanying table summarizes our experience in 679 carefully controlled attempts. We would emphasize that in 584 (86 per cent.) of sessions, drainage was satisfactory following from one to three duodenal stimuli by magnesium sulphate solutions, while failure was experienced at ninety-four attempts (13.85 per cent.). The unsatisfactory results are seen to be mainly from failure of the tube to reach the stomach, obstinate vomiting (two cases) or from persistent pylorospasm (5.15 per cent. of the failure group). In approximately 7 per cent. of the unsuccessful attempts, there were from one to three magnesium sulphate stimuli applied intraduodenally. We would emphasize the importance of repeated stimuli at appropriately spaced (commonly about one hour apart) intervals. Frequently enough we have succeeded in promoting responses and securing highly satisfactory specimens only after three magnesium sulphate duodenal instillations. However, 461 (67.9 per cent.) of the sessions were successful following one stimulus.

Early in our work we presumed, empirically, that failures were due to local or general spasms occurring in the alimentary tract, consequent on disease, presence of foreign body (duodenal tube) or psychic upsets. In an attempt to modify this condition we administered local anesthetics, sedatives or antispasmodics at 220 sessions (cocain, one; codein, one; tincture of deodorized opium, three; atropin, 112; benzyl benzoate, eighty-nine, and tincture of belladonna, fourteen). As our experience became more mature, we learned that our failures were due to improper selection of cases, to faulty technic or to undue haste in carrying through the procedure. At present, we find that medicinal antispasmodics or anesthetics are rarely necessary in the work.

For a time we considered that habitus might influence the rate of deliverence of the duodenal bulb from the stomach, i. e., slow delivery in the asthenic and

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more rapid in the sthenic (Mills',[11] classification). A study of 569 subjects indicated that no practical difference existed (asthenics, 267; sthenics, 298).

"Spontaneous" Gall Tract Drainage.—In varying quantity, this was exhibited by 104 subjects, previous to the instillation of magnesium sulphate solutions. In quantity, character, rate of flow, microscopically and chemically the specimens at "spontaneous" drainage frequently differed markedly from specimens secured following the magnesium sulphate instillations. This is an important distinction. Many workers who depend for their diagnostic information on bile stained material recovered from the duodenum, with the patient in the fasting state and without the employment of such physiologically acting agents as magnesium sulphate solutions, are, doubtless, studying the bile spontaneously passed from an overloaded gall tract upon local duodenal irritation. Consequently, such workers receive wholly unreliable information with respect to biliary tract residues or the capacity of the liver and gall tract to respond to physiologic stimuli. It is interesting to observe that of the 104 patients from whom any considerable quantity of spontaneously discharged bile-containing fluid was recovered, in 61.5 per cent. of instances some degree of liver enlargement was recorded at the physical examination made previous to the attempt at biliary tract drainage. In this group of patients there were about 2 per cent. of instances of pylorospasm preceding the appearance of bile-stained duodenal contents. Other important and interesting data for this group cannot be presented here on account of limited space.

Time Interval Elapsing Between Patient Swallowing Duodenal Bulb and the Appearance of Bile-Containing Duodenal Aspirates.—These figures are, of course, given with respect to 585 successful aspirations and following duodenal instillation of the magnesium sulphate solutions. Only one patient gave satisfactory response in less than two hours; between two and four hours were required by sixty-seven; from four to six hours by 291, and longer than six hours by 188. These figures should require no comment; they carry a significant importance to those who would use nonsurgical biliary tract drainage dependably as a diagnostic or therapeutic aid. Such time intervals occurred in subjects who, in approximately 80 per cent. of the instances, were ill with organic intra-abdominal disease, commonly involving the biliary tract. In less than 15 per cent. of our aspirations were the liver and the bile passages uninjured.

Ability of Magnesium Sulphate Solutions to Excite the A B C Sequence of Bile Flow.—Lyon proposed that an attempt be made to segregate segmentally and to study common duct, gallbladder and hepatic duct and liver bile, by a carefully supervised technic following intraduodenal instillation of magnesium sulphate solutions. He suggested that variations from the normal sequence and from the normal microscopic, cultural and chemical observations on specimens would have diagnostic value. Our observations support those of Lyon. From more than 95 per cent. of subjects who have no alimentary or biliary symptom anomaly, segmental biliary tract drainage is practically feasible. Departures from the A B C sequence commonly indicate disease, and such disease is usually located in the gall tract and the liver.

Of our drainages when biliary tract disease existed as shown by histories, physical examinations, roentgen studies, operative procedures or necropsies, such definite anomalies were established by biliary tract aspiration per duodenum in 97 per cent. of the cases. Of 309 subjects, gallbladder bile was not secured from 100 patients. These patients all had gallbladder disease ranging from acute catarrhal upsets to stasis, fibrosis or calculi. In this group of 100 patients in which B bile was not secured, anomalous duct and liver bile fractions frequently enough indicated on study that, in addition to the pathologic condition of the gallbladder, malfunction and disease were present in other portions of the efferent pathways of the liver.

What Indicates Gall Tract Disease as Revealed by Metapyloric Drainage? Space permits of only a summary of our suggestions; they will doubtless be augmented as our experience widens.

1. No appearance of bile stained fluid in duodenal contents, after repeated magnesium sulphate solution stimuli.

2. A quantity of common duct bile greater than 25 c.c., in which bile are found abnormal sediments: blood, pus, increased cholesterin, pigment crystals, calculi, epithelium, mucus and bacteria. When biliary tract disease was present, our average quantity of common duct bile was 49 c.c.; it ranged from 25 to 300 c.c. Intermittence of discharge of common duct bile on repeated intraduodenal stimuli is of useful import.

3. Absence of gallbladder bile following repeated magnesium sulphate stimuli indicates some break in the neuromuscular reflex, cystic duct obstruction from whatever cause, gallbladder atony or overdistention, inspissated or calcareous gallbladder contents, gallbladder tumor or benign or malignant adhesions involving the gallbladder or ducts.

4. Securing gallbladder bile in quantity greater than 75 c.c. or less than 20 c.c. or of different types on repeated intraduodenal stimuli; gallbladder bile intermittently discharged, especially when in the specimen obtained there are found pus, blood, minute calculi, high cholesterin and pigment values, and in contrast to other gall tract specimens studied, desquamated, diseased epithelium and actively growing bacteria. Our cases returned an average of 119 c.c. of bile (range of from 5 to 1,350 c.c.) in forty-five instances in which gallbladder disease actually existed. In none of these specimens were chemical, cytologic or cultural returns normal. We would again emphasize the observation that dark colored bile specimens do not necessarily come from diseased gallbladders, or that bile not dark colored is free from anomalies and does not come from gallbladders. The microscope and the culture tube give the deciding evidence. Dark color indicates commonly stagnation in some part of the biliary tree from the liver lobule to the papilla of Vater, or abnormal function on the part of the liver itself due to local or systemic upsets.

Value of Laboratory Analysis of Each Specimen Secured on Nonsurgical Biliary Tract Aspiration.—If one desires to obtain reliable information, specimens must be examined grossly and from the laboratory side as they appear fresh from the duodenal tubes. A microscope should be immediately at hand, culture tubes available (several tubes are planted from each bile tract fraction, with mediums chosen to render possible the maximum information), specimens carefully set aside for estimation of cholesterin and pigment values, and slides prepared for study of viable protozoa, crystalline bodies, atypical cells and bacteria. It is highly important that slides stained and unstained be

11. Mills, R. W.: Proc. Am. Gastroenterol. A., 1919.

examined if one is to secure a maximum of evidence from the different bile tract fractions. Even with such attention to detail, particularly with respect to bacteriology, one is often in doubt.

Our observations with regard to the microscopic pictures presented by various types of biliary tract disease, as well as by normals, will be reserved for a later report. There is much work to be done in these lines. Viable colon bacilli were returned by 75.4 per cent. of our patients; staphylococci, by 14.9 per cent.; streptococci by 5.26 per cent. and yeasts, *B. typhosus*, micrococci and unidentified organisms were found in 4.38 per cent. It has seemed to us that only when one fraction of the segmented aspirates contains a predominant increase in a type or group of bacteria (particularly the streptococcus, colon and typhoid groups) or an extensive infection exists noticeably through all the fractions, can we at present stress the significance of our cultural studies. From the gall tract fraction alone of a patient from Alabama we recovered viable *Trichomonas hominis-intestinalis*.

THE THERAPEUTIC USEFULNESS OF NONSURGICAL BILIARY TRACT ASPIRATION

Elsewhere [10] we have already voiced our cautions in respect to this phase of the work. It is a mistake to attempt relief of obstructive lesions, known calculi, tumors and the like, when by surgical endeavor more logical and positive relief may be quickly brought about. If such caution is neglected, then the Meltzer-Lyon regimen will fall into disrepute both as a diagnostic and as a therapeutic adjuvant.

It has been proved to us definitely in our practice that metapyloric biliary tract drainage has a place in the treatment of affections of the biliary tract. In ailments which are of recent inception or where pathologic damage precludes hope of successful surgery, by preventing bile stasis, by attempting to eradicate infection and by striving to improve hepatic function, in these groups of disturbances the procedure is of service. In summary, such patients fall under the following classification:

1. Acute choledochitis, cholecystitis or hepatitis in association with acute infectious ailments (scarlet fever, pneumonia, typhoid fever, tonsillitis, etc.); or arising as limited biliary tract disease.

2. Hepatitis with duct malfunction of toxic origin—ptomain poisoning, lead or phosphorus poisoning, and acute yellow atrophy, especially the variety following injection, intravenous or muscular, of certain arsenical products used therapeutically.

3. Biliary stasis in association with acute or chronic heart embarrassment.

4. Gall tract stasis in the cirrhoses.

5. Gall tract stasis, dysfunction or infection in the severe anemias (hemolytic, "pernicious," Banti's syndrome, "chlorosis," etc.).

6. Dyspeptic storms occurring as "biliousness" in conjunction with migraine, epilepsy, etc.

7. Chronic or acute "rheumatoid" infections when all extra-abdominal foci of infection have been removed, and when biliary tract involvement remains and the "rheumatoid" ailment progresses.

8. Gall tract and liver stasis or infection present with diabetes, exophthalmic goiter or pancreatitis where operative interference is not possible or can be performed to but a limited extent.

9. Duodenopyloric or pyloric ulcer, frequently recurring coincident with "bilious" attacks or atypical ulcer manifestations, and when reliable surgery is not available or the subject is unsuited.

10. Instances of intestinal stasis in which dyspepsia of gall tract and liver type complicates; frequently recurrent attacks of so-called "mucous colitis."

11. As we have elsewhere reported,[12] when, following operative procedures on the biliary tract, malfunction still remains and no further surgery is possible.

12. Gall tract stasis with low grade indolent infection not complicated by gross mechanical defects, calculi or neoplasm.

Method Employed.—Metapyloric biliary tract aspiration is only part of a therapeutic program; this fact is worthy of much emphasis. To relieve stasis in the bile tract, we suggest frequent drainages (from three to six days apart) and at each drainage from two to four stimuli with magnesium sulphate solutions. The most satisfactory results follow these frequent drainages and the repeated stimuli at each session: clinical improvement seems to be directly proportionate to the frequency of drainages in a given period. In 150 subjects we have instituted drainage from six to eleven times. This group has shown the greatest improvement, not only clinically, but also with respect to the laboratory reports on the bile fractions secured.

Elsewhere [10] we have published the regimen which we have found of service. We see no occasion to modify its general principles and procedure.

ABSTRACT OF DISCUSSION

DR. SYDNEY R. MILLER, Baltimore: I have constantly kept in mind one of Lyon's statements made in one of his earliest papers to the effect that the method is to be regarded as a supplementary procedure in diagnosis and treatment. From a review of the literature and the study of cases, I have come to have the following conclusions: After transduodenal lavage a free flow of bile is secured in most instances passing through an A, B and C sequence. Despite this I am not entirely convinced that the evidence is conclusive in proving that this sequence represents common duct, gallbladder and hepatic bile discharge. Meltzer's theory is perhaps more theoretical than absolute and, as yet, has not lent itself to accurate experimental verification. The technic is surrounded by fundamental difficulties which can hardly be overcome by any method sufficient to make the bacteriologic findings absolutely free from doubtful interpretation. It has been difficult to correlate the bacteriologic findings secured in the laboratory with those subsequently found at operation on the same patient. Too little precise knowledge still exists concerning the normal bacterial flora of the stomach, duodenum and gallbladder region. It is difficult to understand how some find a hemolytic streptococcus with such ease. It is hard to believe that the colon bacillus secured in this way is of as much importance as some would assume. I cannot help but feel that the method offers much of promise not only in the field in which Dr. Lyon introduced it but in the broader field of internal medicine. However, a little more conservatism should be exercised, at least for the present. The most extravagant and unfounded claims are already being made for the method which does it more harm than good.

DR. S. K. SIMON, New Orleans: As far as I can learn, the opposition to the method centers around two main points. First, magnesium sulphate is not essentially the sole agent that might simulate the innervation of a group of reflexes as those exhibited by Darier and afterward by Meltzer. Second, the so-called B bile is not derived from the gallbladder itself. In regard to the question of stimulation of biliary contraction by a chemical agent, and granting that other agents are able to simulate biliary contraction, it does not essentially detract from the underlying principles of the method. Whether the B bile really represents an

12. Smithies and Oleson: Proc. Med. Section, Illinois State M. A., Annual Meeting, Springfield, May, 1921.

accumulation of septic bile is not an essential point. Those who have carried out this technic faithfully and have observed the results say that the bile can be distributed into three distinct portions. These three portions have been unfolded definitely as the result of clinical observation with the method. The method does succeed in bringing down a free flow of bile into the duodenum. A new field in diagnosis has been opened. Therapeutic possibilities of a far greater degree than we can conceive are made possible by this method. The method is not meant to supplement surgery, but it is designed to supplement many of the procedures in which surgery has failed. One other point I want to stress: In acute cases of acute cholecystitis with intense gallbladder pain and all other symptoms, I have seen in two or three instances remarkable clinical recoveries following the emptying of the bile, with immediate subsidence of the tumor and immediate recovery from the high temperature, pain and toxic symptoms.

DR. JAMES B. LUCKIE, Pasadena, Calif.: Dr. Lyon states that, in 63 per cent. of his cases subjected to operation, bacterial cultures were obtained. In my own practice I find 59 per cent. giving cultures. He mentions the low gastric acidity cases as more liable to have gallstones. In most of the patients with no gastric acid or very low readings who have symptoms referable to the gallbladder, there is a lessened amount of B bile or none at all. This is not saying, however, that all low acid cases have stones. Our bacterial findings vary somewhat from those of Dr. Lyon. Maybe this is due to California's salubrious climate, but at any rate we find colon bacilli far oftener than any other, staphylococci second and pneumococci third. We make use of vaccines only in the staphylococcus cases, as disappointment has been our lot in the use of other vaccines. Something should be said of the dry duodenum, as it is puzzling at times. I have seen three such cases. No fluid was obtained when the tube entered the duodenum, yet I felt sure that the bulb was in the proper position. In these cases I gave the patient a swallow of grape juice and after a moment used gentle aspiration. Not recovering the grape juice, I injected Meltzer's hormone and was immediately rewarded by a good biliary flow. On account of the grape juice, however, this bile was not used for culture. The use of the method should be mentioned as a preoperative procedure also, as it is of great assistance to the surgeon, and eases the patient over the postoperative rough spots. A note of warning should be sounded regarding the treatment in arteriosclerotics. In checking up the blood pressure in 100 cases before and after draining, I find the systolic pressure is raised on the average of 12 mm. of mercury by the procedure. This could, I imagine, cause a rupture in a person with very brittle arteries.

DR. F. W. WHITE, Boston: This method of medical biliary drainage makes a strong appeal to the physician and to the patient. The physician can take out the contents of the bile passages for examination for mucus, cells, bile salts, bacteria, etc. The "bilious" patient sees the bile flow out and feels that the physician has done something for him. It is often hard to tell just where the bile comes from and to segregate the bile from different parts of the bile passages in an accurate way. I find considerable difficulty, at times, in interpreting the cells, crystals and cultures and in estimating the total value of the whole method. I heartily agree with what Dr. Miller has just said about it. The method deserves scientific study. We must know more of the physiologic basis of the method. Why does the bile flow so freely? Where does it come from? How complete is the bile drainage? We must have long series of normals and more laboratory experiments. My own experience shows that there is something of real value in the method both for diagnosis and for treatment; but there are plenty of limitations and exceptions, as in all clinical methods. We must be a little cautious about our conclusions. I was struck by the remarks of Dr. Smithies that, in carrying out the method, no drugs were needed to help insert the tube; also that the type and shape of stomach made little difference. We have found the same thing. We do not agree with Dr. Smithies in regard to the ease of segregation of A, B and C bile. If we have three bottles, of course, we have to put something in each; but I think another observer might put a different amount in each bottle. I have tried the treatment carefully and I am left with the impression that these patients were better, at least some of them, because of their treatment by bile drainage.

DR. B. B. VINCENT LYON, Philadelphia: The correctness of the interpretations of the bacteriology seems to be still an open question with some, and a stumbling block with others. We found that cultures taken on solid mediums did not give accurate cultural returns like those from liquid mediums. The first necessity is that the extra duodenal tracts higher up should be properly taken care of before a duodenal or bile cultivation can be worth anything. Secondly, cultures must be made immediately as the materials are being recovered, and not allow rapidly growing organisms to overwhelm more feebly growing but pathologically important bacteria, such as the streptococcus. Thirdly, microscopic examination of the freshly recovered materials should be made in spreads or hanging drop preparations, and a general idea obtained as to the floridity of bacteriologic growth, the presence or absence of colony formations, and a rough morphologic division between bacillary and streptococcus groups. A liquid medium used in the Rockefeller Institute for the especial purpose of recovering streptococci is a glucose bouillon, titered to a certain acidity which stimulates streptococcic growths and inhibits colon bacilli growth. During the past one and a half years we have used this formula with a great increase in our positive streptococci recoveries. It is a little difficult to tell when the recovery of the colon group may be considered a pathalogic finding. We believe that in the larger number of normal patients the colon bacillus does not customarily grow freely in the duodenum. We do not feel that the simple recovery of the colon bacillus indicated a definite infection of the duodenum or gall tract; but we do feel that if we take a culture in our glucose bouillon, and it develops a luxuriant growth of colon bacilli after merely standing at room temperature for an hour or two, such a luxuriant growth may be a truly pathologic infection that has gained a strong foothold. Particularly do we feel so if this growth is secured from the gallbladder bile in luxuriant growth, and rather less luxuriantly from the duodenal fluids alone. We believe in the reliability of our bacteriology, as checked up by our vaccine therapy when it gives rise to a focalizing vaccine reaction reproducing one or more of the presenting complaints, and which symptomatically disappears as vaccination, together with biliary drainage, is continued.

CHRONIC ULCERATIVE COLITIS*

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Since Sir Samuel Wilks[1] in 1875 and W. Hale White[2] in 1888 first described "simple ulcerative colitis," very few extensive reports on the subject have appeared in the literature. Noteworthy among these are the communications of Albu[3] in 1914 and Logan[4] in 1919.

This paper is based on sixty-five cases of chronic ulcerative colitis of unknown etiology that I have observed. No cases due to parasites, tuberculosis, syphilis or other recognizable causes are included.

The disease is characterized by an acute or gradual onset, most frequently between the twentieth and fortieth years of life; ulceration of the colon as the essential pathologic condition; dysentery, either con-

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1. Wilks, S., and Moxon, W.: Lectures on Pathological Anatomy, Ed. 2, 1875, p. 408.
2. White, W. H.: Guy's Hosp. Rep. **30**: 131-162, 1888.
3. Albu, A.: Mitt. a. d. Grenzgeb. d. Med. u. Chir. **28**: 386-414, 1914-1915.
4. Logan, A. H.: Collected Papers, Mayo Clinic **10**: 180, 1918.

tinuous or with remissions, as the cardinal symptom; a protracted course of many months or years, and a guarded prognosis.

ETIOLOGY

Thirty-five patients were between 16 and 30 years of age; thirteen, from 31 to 40; eight, from 41 to 50; five, from 51 to 60, and four, 61 or older. The youngest patient was 16, four were under 20 years, and the oldest was 66 years of age. Thus, young people, subject to indiscretions of diet and exposure, comprise the majority of cases. Males numbered thirty-six, and females, twenty-nine cases.

From the history, no definite cause could be assigned in thirty-seven cases. In five cases there was a history of amebiasis; but no amebas or cysts were found in the stools, and full courses of emetin gave temporary benefit in only one case. The onset dated from dietary indiscretion in six cases, severe constipation in five, exposure in three, and injury, pyorrhea and root abscesses, and pregnancy, two cases each. It followed parturition in one case and a surgical operation in three cases. These etiologic factors are significant only as reducing temporarily the natural body resistance.

Search of the stools was negative for *B. dysenteriae* (Shiga, Flexner) amebas, cysts, ova, parasites, tubercle bacilli and flagellate bodies.

Stained smears from the stools and direct from the ulcers generally showed the usual intestinal flora. Cultures from the same sources grew *B coli* regularly, together with various strains of streptococci and staphylococci.

The bacteriologic study in 12 per cent. of the cases yielded no special organism, thus suggesting that the normal intestinal flora or types not differentiated from them were responsible for the inflammatory process.

As Kendall[5] states, "Normal intestinal organisms, or types indistinguishable from them by ordinary methods of study, may multiply with abnormal luxuriance through unusual conditions, extend their normal habitat and crowd out some of the existing organisms, eventually leading to abnormal reactions in the alimentary canal which may be detrimental to the host." Among such "unusual conditions" are food toxins, severe constipation, injuries, surgical operations, pregnancy and labor, all of which temporarily lower normal resistance. Normal intestinal bacteria may thus assume unusual virulence or abnormal organisms be ingested.

There remains, however, a majority of cases in which none of these factors were apparently operative. Although it is debatable whether a specific organism is the causal agent, it is without doubt an infection that keeps up the inflammatory process. Flavoring the theory of infection is the fever and prostration often present at the onset, and later, septic complications, especially arthritis.

PATHOLOGY

The pathologic process is that of a simple, chronic inflammation. The superficial changes in the mucosa, as seen through the sigmoidoscope introduced 10 inches and extending an indefinite distance beyond, were classified as:

(*a*) Superficial discrete ulcers, small or large, twenty cases.
(*b*) General superficial ulceration and granular areas, twenty cases.
(*c*) Large, irregular, chronic ulcers, with a grayish, necrotic base, the intervening mucosa being apparently normal, nine cases.
(*d*) Deep hemorrhagic ulcers, or a bosselated appearance, four cases.
(*e*) Deep "moth eaten" closely set ulcers, two cases.
(*f*) Superficial irregular ulceration and granulation, limited to rectum and sigmoid, ten cases.

Secondary complications were polyps in four cases, a rectal stricture of 2 cm. diameter in one case and arthritis or joint pains in four cases.

Liver abscess has been reported in the literature as a rare complication. Amyloid liver might naturally be expected to develop eventually, as in other chronic pyogenic processes.

Both the gross and microscopic changes in the colon are well illustrated by a patient (Case 39) of Dr. David Bovaird, seen by me in consultation, and later operated on by Dr. Hugh Auchincloss. Through their courtesy, the case is reported.

History.—J. M., a man, aged 28, had severe ulcerative colitis of three years' standing when I first examined him in 1917. Weight loss was 60 pounds, and he was weak and miserable. All laboratory tests were negative. Appendectomy, cecostomy and enterostomy were performed at one sitting. Considerable improvement ensued, then the bowel condition remained stationary, and arthritis and contractures of several muscles developed. Colectomy was performed in October, 1918, with most favorable result. The patient has gained 37 pounds in weight and feels practically well. Nevertheless, the residual ulcerated rectum is still unhealed two and one-half years after operation.

Drs. W. C. Clarke and A. P. Stout report on the resected colon:

Gross Appearance.—The specimen consisted of a resected colon, 37 cm. long, and 3 cm. in diameter. Its peritoneal surface was somewhat blood-stained and there was considerable fat in the appendices epiploicae. The distal end of the colon was much contracted. Longitudinal section revealed the proximal end distended, the wall thin. The mucosa was apparently absent, roughened by fibrin. There were blood coagula irregularly throughout the whole lumen. The roughening of the lining with deposition of fibrin and apparent ulceration extended to within 8 cm. of the distal end. Here, the mucosa was thrown up into irregular hillocks, was not ulcerated, and was covered with fine, irregular patches of fibrin. No ulcerated surface was apparently deeper than the mucosa, except apparently a few small isolated points where the ulceration may have invaded the submucosa (Fig. 1).

Microscopic Examination.—Most of the sections taken through the wall of the intestine showed no direct ulceration, but a rather atrophic mucosa in which there were a number of widely dilated glands filled with leukocytes. Some of these gland spaces had lost part of the epithelial lining, and the resulting appearance suggested a small abscess (Fig. 2). The submucosa and muscularis were edematous, and were infiltrated with scattered leukocytes, round and plasma cells and evidences of connective tissue proliferation. External to the muscularis were a number of dilated lymphatic vessels. One section showed a distinct area of ulceration on the lumen surface with complete loss of mucosa and replacement by granulation tissue (Fig. 3). In the vicinity of this ulcer there was a group of foreign body giant cells with irregularly rounded spaces in their cytoplasm. The process had no specific characteristics.

The diagnosis was ulcer of the intestine.

SYMPTOMS

The onset was gradual in forty-seven cases and acute in eighteen with diarrhea, and in nine cases an elevation of temperature. The number of stools varied from three to twenty, the average being seven, and occurred mainly in the morning and evening, seldom at night. Ten patients were constipated, passing dis-

5. Kendall, A. I.: Gastro-Intestinal Bacteriology, Philadelphia, Lea & Febiger, 1916.

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charge only. The reaction of the stools to litmus varied. The discharge consisted of blood alone in ten cases, blood and mucus in nineteen, blood and pus in twelve, and blood, pus and mucus in fifteen. Hence blood predominated or was present in the discharge of 86 per cent. of the patients. Steady blood loss rapidly weakens the patient.

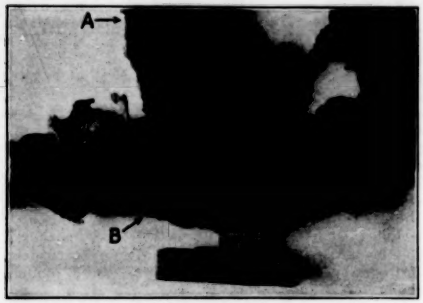

Fig. 1 (Case 39).—*A*, roughening of lining with deposition of fibrin and apparent ulceration of proximal end of colon; *B*, intact mucosa of distal end.

Loss of weight was not striking in several cases, being less than 4.5 kg. (10 pounds) each in twenty-five cases, from 4.5 to 9 kg. (10 to 20 pounds) in eighteen cases, from 9.5 to 23 kg. (21 to 50 pounds) in thirteen cases and over 23 kg. (50 pounds) in four cases. The greatest weight loss was 36 kg. (80 pounds), and the average 9 kg. (19½ pounds). The blood picture is not characteristic, but often is that of a secondary anemia. The red cell count was under 4,000,000 in a few cases having marked bleeding. The hemoglobin index varied from 55 to 90 per cent., and was 30 per cent. in one cases of severe melena. Leukocytes varied from 9,000 to 29,000. The eosinophil count in ten cases was from 1 to 11 per cent. of the white cells, with an average of 4 per cent. The Wassermann reaction of the blood was positive in three cases, negative in fifty-five, and not taken in seven. So syphilis is not an important etiologic factor.

In the cases in which gastric analysis was done, the findings were comparatively normal or a subacidity was found. Urinalysis gave no significant deviation from the normal except a regular excess of indican.

Intestinal colic and urgency before bowel action is rather characteristic, as is a feeling of abdominal unrest and occasionally tenseness when the rectum is extensively involved. Abdominal tenderness is notable only when perforation of peritonitis complicates the colitis. The sigmoid colon, however, can usually be felt as distinctly thickened, and pressure on it excites a desire to defecate.

Some patients carry on their usual vocations without great effort, but in the majority there is progressive weakness and prostration.

The chronicity of the process is indicated by the period the disease had existed before my observations, namely, under one year, twenty-nine cases; from one to five years, twenty-eight cases; from six to ten years, six cases; and from eleven to fifteen years, two cases. The average period was two years and two months. Remissions of weeks or months characterized many of the protracted cases.

DIAGNOSIS

The diagnosis is easily made on the (*a*) history; (*b*) laboratory examination of the stools; (*c*) sigmoidoscopy, and (*d*) roentgenograms of the colon.

Direct inspection of the bowel through the sigmoidoscope is essential. By it we see the character and extent of the ulceration, which practically always begins in the terminal colon and rectum, obtain material for laboratory examination, and rule out other lesions characterized by frequent bowel discharges as benign and malignant tumors, stricture, etc.

The roentgenologic examination should include the chest for infiltration of the lungs, as some of the protracted cases suggest a latent tuberculosis. Infiltration was present in few cases, but the sputum and stools were always negative for *B. tuberculosis*.

The colon picture after the barium clysma is characteristic, once the bowel has become thickened and inelastic. Very early it may present a mottling, probably due to the ulceration and hyperperistalsis. Later, nonhaustration and contraction are marked, especially in the descending colon and sigmoid flexure (Figs. 4 and 5), the transverse colon may also show the same changes (Fig. 6), and rarely the entire colon.

In none of the sixteen cases of this series examined by the roentgen rays were upper segments of the colon demonstrated to be implicated without the descending colon and sigmoid.

Good roentgenograms indicate the extent of the pathologic process, and are of great value in the prognosis and method of treatment. Spastic colitis may, of course, present similar roentgen-ray findings, but the other diagnostic factors are absent.

Fig. 2.—Section of colon wall. Rather atrophic mucosa; dilated glands filled with leukocytes; loss of epithelial lining of some glands. Resulting appearance suggests small abscesses at *A*. Submucosa and muscularis are edematous, infiltrated with round and plasma cells, and present evidences of connective tissue infiltration.

PROGNOSIS

The prognosis should be very guarded. Some patients respond to treatment promptly; others, with closest cooperation of both physician and patient, improve slowly, remain stationary or retrograde, while a few succumb despite our present medical and surgical therapy.

TREATMENT

Of the sixty-five patients in this series, eleven were seen only once in consultation or discontinued treatment, leaving fifty-four cases (twenty-nine clinical and twenty-five private) which were observed over months or years and treated consistently. All but six of the cases occurred in the years 1916-1921.

Fig. 3.—Section of colon wall. Note distinct area of ulceration and replacement of mucosa by granulation tissue.

The accompanying table gives the methods of treatment pursued and the results obtained.

Rest.—Relaxation for an hour while lying down after meals is important. Absolute confinement to bed does not limit the number of bowel actions, and in a few instances was attended by regular loss of weight, as much as 0.5 kg. (1 pound) a day for two weeks, progressive weakness and exhaustion. On the other hand, in severe cases, especially the hemorrhagic type, close confinement to bed is imperative. In general, most of these patients do best with moderate exercise, but not to the point of fatigue.

RESULTS IN CASES TREATED

Medical	Total	No Benefit	Fair Improvement	Marked Improvement	Cured	Death
Local and constitutional	28	6	3	8	10	1
Emetin with local and constitutional	4	1	1	1	..	1
Autogenous vaccine	10	3	1	3	3	.
Blood transfusion	3	1	.	2	..	.
Surgical						
Appendicostomy	7	1	2	1	3	.
Colectomy	2	..	.	1	..	1
Totals	54	12	7	16	16	3

The diet may be mixed, but must be nutritious and thoroughly masticated, excluding only highly fermentative articles and those which leave an irritative residue.

The drugs employed have ranged from the usual tonics and intestinal antiseptics to arsphenamin, emetin, yeast, and Bulgarian bacilli, the last by mouth, by colonic implantation, and through an appendicostomy.

Local Treatment.—This comprised colonic irrigations, instillations, and topical applications through the sigmoidoscope. Mechanically, the latter is limited to the segment of bowel below the apex of the sigmoid. Instillations, to be retained over night, of warm olive oil or liquid petrolatum with bismuth and orthoform, and of 1 to 2 per cent. argyrol solution are very beneficial, as is aqueous extract of krameria.

Colonic irrigations vary in efficiency with the individual patient. Some tolerate them well and respond favorably to daily irrigations, while others do better with intervals of two or three days, and a few patients seem to be aggravated by them. Irrigating fluids have included plain water and physiologic sodium chlorid solution and solution of boric acid, sodium bicarbonate, hydrogen peroxid, potassium permanganate, quinin, chloramin-T and silver nitrate. Peroxid, in 2 per cent. solution, has given the best results.

Fig. 4 (Case 7).—Nonhaustration of descending colon. Patient markedly improved by treatment through an appendicostomy.

Autogenous vaccines from cultures of material taken directly from the ulcers were employed in ten cases.

The vaccine used was *B. coli-communis* in five cases, and *B. coli* and *Staphylococcus albus*, five cases. The prompt and favorable response to rapidly increasing doses of vaccine was most striking in three of these patients who were apparently cured, and three others were markedly improved.

The vaccine was used empirically, but the results would seem to warrant their further trial.

It is possible that a special or specific micro-organism may initiate the disease. However, we know that chronic ulceration of the colon may persist after an attack of amebic or bacillary dysentery, although the presence of amebas or *B. dysenteriae* can no longer be demonstrated.

Fig. 5 (Case 3).—Nonhaustration of descending colon.

Bacteriologic studies indicate that in these cases at least the usual intestinal flora infect the ulcers secondarily and so maintain the process. The benefit from autogenous vaccine therapy may therefore accrue from antidoting the secondary infection.

Transfusion of blood was employed in three cases, with striking and permanent improvement in two and no benefit in one. It is indicated in exhaustion due to hemorrhage and preliminary to surgery in debilitated patients.

Surgery is indicated after a thorough trial of the measures already mentioned, without favorable result, and early in a certain few "galloping" cases which are rapidly passing to a fatal issue.

In one of the cases reported, in which there was severe hemorrhage, the patient could almost surely have been saved had the patient not refused an ileostomy.

Irrigations through an appendicostomy cured three patients and markedly improved one of seven patients on whom I operated. Ileostomy is preferable and more efficient, but has the objection of a fecal fistula which must be closed later. Either of these operations can be performed under local anesthesia.

When the entire colon is involved and all its coats implicated so that it is practically a suppurating tube, colectomy is surely indicated. Even then the residual functioning rectum, if involved, may be slow to heal, as noted in the case reported.

Three patients died, two of whom were treated medically and one surgically.

In one of the medical cases the patient had a three-plus Wassermann reaction, high temperature and frequent large passages of blood. She refused to have an ileostomy performed which probably would have tided her over.

The other patient was an Englishman who had suffered from amebiasis in China some years before. The blood Wassermann reaction was four-plus. His diarrhea was severe, the temperature was subnormal, and he succumbed to exhaustion.

The operative death occurred in a man, aged 63, a few days after a colectomy performed in another city against my advice.

SUMMARY

1. Chronic ulcerative colitis is a serious disease, its victims often passing through many hands before its true nature is recognized.

2. By the use of modern instruments of precision and laboratory tests, its diagnosis is simple, as is its differentiation from other lesions which cause similar symptoms.

3. Until and unless a special or specific micro-organism is isolated as the causal agent—a rather unlikely probability—the treatment is symptomatic and empiric.

Fig. 6 (Case 45).—Haustra absent and marked contraction of transverse and descending colon and sigmoid. Ulcerative colitis of eighteen months' duration. Ileostomy indicated and advised. Patient refuses operation.

4. Treatment in the vast majority of cases is medical at first; this failing, surgery is indicated.

5. There is need of further observation and reports of large series of cases and serious study, especially on bacteriologic lines, by staining of tissues and cultures, to elucidate, if possible, the obscure problem of its etiology.

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ABSTRACT OF DISCUSSION

Dr. H. W. Soper, St. Louis: I endorse what Dr. Yeomans has said. In the milder forms of colitis much can be accomplished by means of dietetic measures, autogenous vaccines, etc. In the severe form of hyperplastic colitis, when the roentgen ray shows complete obliteration of the haustra, colectomy is the only measure that is successful. In this form of colitis the colon is much thickened and is really to be considered as merely an elongated pus tube. Before colectomy, the operation of ileostomy should be done. It is important that the ileum be entirely separated from the cecum. In one of our cases in which this separation was not done, reverse peristalsis of the colon flooded the wound, producing a fatal infection of the ileum. Irrigation of the severe hyperplastic type of case by appendicostomy is of no avail. It is important to distinguish cases of general colitis from those infections which involve only the rectum and pelvic colon. Cases in which the rectum and pelvic colon alone are involved are amenable to local treatment, particularly by the insufflation of dry powder. The powder that has the most value is a mixture of equal parts of calomel and bismuth subcarbonate. Irrigations are contraindicated in cases of proctosigmoiditis, as infectious material may be carried higher up and the simple proctosigmoiditis thereby converted into a severe general colitis. As a matter of fact, irrigations are of doubtful value in general colitis; in my opinion they produce irritation and are harmful.

Dr. Ralph W. Jackson, Fall River, Mass.: From what has been said, it is evident that ulcerative colitis is of unknown etiology. Liquid petrolatum has its value in the treatment of ulcerative colitis, but is contraindicated when using irrigations, because it is not miscible with water and the aqueous solutions usually used, and it complicates the removal of offending materials by these means. Bismuth salicylate, in my hands, has proved a drug of definite value in the treatment of ulcerative colitis, apparently having a positive intestinal disinfectant action, lessening the number of discharges, the amount of gas, etc. No great amount of time should be wasted in medical treatment alone, and early resort should be made to irrigations in some form. The great variety of solutions recommended is a commentary on their efficiency; yet, in spite of what Dr. Soper has said, I believe that they are of much value. After cleansing irrigation, silver nitrate solution in proper strength often does good; likewise solutions of salicylic acid and of the vegetable astringents, such as krameria, are good; and during the last two or three years some surprising results have been obtained in aggravated cases with chlorin preparations. The irrigations should always be given slowly and with a short tip either in the knee-chest or in the exaggerated Sims position on the left side, in the form of what I like to call a "gravity enema." Failing to get results with irrigations by the anus, resort should be made to appendicostomy or valvular cecostomy. I prefer appendicostomy. In the more aggravated cases nothing will do but putting the entire colon at rest, and this is best done by a double barreled ileostomy from 6 to 8 inches above the ileocecal valve, the proximal opening serving as a fecal exit and the distal for irrigations, which will not back out if the valve is competent. When the colon has been at rest long enough for the pathologic condition to disappear, then I believe it is often preferable to do an ileosigmoidostomy and retain the distal opening for occasional irrigation and keep the colon clean, rather than to restore the continuity of the ileum and the whole colon to function again, thereby opening the door to relapse of the colitis. Colectomy may be considered but is not to be undertaken lightly or often, whereas ileosigmoidostomy may be done safely, with the sigmoid now in fairly healthy condition, and has proved very satisfactory. Finally, I would stress two things; first, that all ulcerative colitis tends to recur; and second, that the chief guide in diagnosis, determination of improvement, and decision as to method of treatment, should be the sigmoidoscope and its findings.

Dr. S. G. Gant, New York: I did not know that bacillary colitis and amebic colitis had been eliminated. We have syphilitic colitis, tuberculous colitis, and a type very difficult to cure which is caused by *Balantidium coli*. Then we have a certain number of cases in which we do not know the etiology. It does not make much difference. They all respond to the same line of treatment. I think the cure of the ulcerations depends chiefly on keeping the parts clean. Regarding Dr. Soper's statement that he did not think appendicostomy was of value, I cure hundreds of patients by appendicostomy. I cannot appreciate why a man will resect the colon for ordinary ulcerative colitis. I think there have been enough people killed by colectomy for constipation, and I hope we do not get an epidemic of this for diarrhea. Dr. Yeoman's cure was deplorable since the patient suffered from polyposis; secondary to ulcerative colitis. In that type of case, if the colon is not removed the condition will sooner or later degenerate into malignancy. I do not know of any type of case in which I get as good results as in colitis following appendicostomy and irrigation with 2 per cent. iodin. In cases of hemorrhagic colitis, ileostomy or colostomy is all right, and I make a double barrel opening. When I do not cure by appendicostomy it is because I do not use sufficient irrigation or change the patient's posture during treatments.

Dr. J. M. Lynch, New York: I have seen a great many patients suffering from ulcerative colitis, within the last ten years. It seems they are in one of two classes—either surgical or medical. It is not a question of ileocolostomy, cecostomy, or any other ostomy. It is wholly a question putting the bowel at rest. If you put the bowel at rest, it heals. I have found potassium permanganate, 1:100,000 almost a specific. A few years ago Dr. Brewer, at my suggestion, performed an ileocolostomy, and a gain of 22 pounds (10 kg.) followed. When no specific germ is present, we classify the infection as nonspecific. It is my opinion that, in a large percentage of cases, the small bowel eventually becomes involved.

Dr. C. D. Spivak, Denver: We all want to use every means that will prevent our patients from coming to the operating table. We have been using sunlight in the sanatorium of the Jewish Consumptives' Relief Society for the last eight months. It has proved an excellent remedy in many cases of tuberculous colitis. We have not had any experience with cases of nonspecific colitis, but I am sure that if tuberculous colitis can be benefited by sun treatment, surely all the other nonspecific cases must also be benefited. We commenced the treatment hesitatingly, but we are applying it faithfully and systematically and are arriving at the conclusion that the value of the sun's rays in a great number of tuberculous colitis is unquestionable. I will not dwell on the other types of cases being treated by sunlight with benefit, but I am sure that any one who will carry out the treatment in accordance with the technic worked out by Rollier will surely have good results in more cases than they have ever had before.

Dr. Frank C. Yeomans, New York: The limit of the local treatment through the sigmoidoscope, of course, is the apex of the sigmoid, because we cannot pass a straight tube beyond that point. To ulceration below that point we apply local treatment when indicated. In ten of these cases with constipation I found, contrary to the experience of Dr. Jackson, that liquid petrolatum worked very well. I do not usually give liquid petrolatum while irrigations are being used. We are discussing chronic ulcerative colitis of unknown etiology. Sometimes in amebiasis, after the amebas and cysts disappear, a chronic ulcerative colitis persists. Tuberculous colitis is excluded from the paper on the ground that it can be diagnosed. Bacillary dysentery infection may have initiated the process; but, after a short while, *B. dysenteriae* disappears from the stools, and there remains a chronic ulcerative colitis. In most of these cases neither an amebic nor a bacillary dysentery infection initiates the process. The case shown was rather extreme, which was the reason for the operation. We were dealing with the chronic suppurative type. In such a case the indication is, of course, surgery if the patient is in condition to stand it. The selection of operation depends on the experience and preference of the surgeon. The purpose of this paper is not to discuss the technic of operation. That is not the point. Patients who have very severe suppurations have gone for years without thorough examination or a diagnosis and without competent treatment. We do not know the etiology.

HERNIA REDUCED "EN BLOC"

E. L. ELIASON, A.B., M.D.
PHILADELPHIA

In a review of the literature I find that Corner and Howitt,[1] in 1910, reviewed a series of 137 cases of hernia to that time reduced *en bloc* or *en masse*. In this article they state that 113 were inguinal, twenty-two femoral and two obdurator, but none of the umbilical or ventral variety. The mortality in the inguinal cases was 48 per cent. and in the femoral cases, 72 per cent. The condition is usually a result of taxis, but may occur spontaneously.

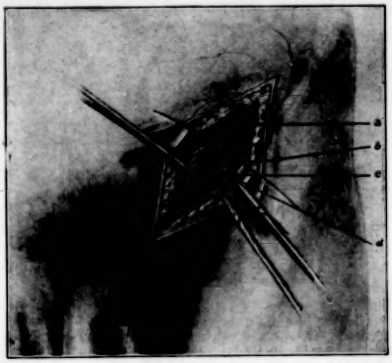

Fig. 1.—*a*, internal oblique muscle, the external being retracted; *b*, omentum; *c*, Poupart's ligament; *d*, opened hernial sac.

Since this publication in 1910, isolated cases have been reported from time to time by Bookman, Henningsen, Roscher, Ochsner, Harrison, Rayner and others. In all, only twelve cases could be found from 1910 to 1920. This is a remarkable difference from the quoted series of 137. However, to substantiate this great reduction is the fact that in the examination of the reports in a total of more than 12,000 herniorrhaphy cases taken from several different hospitals from 1901 to 1918, not a single case of reduction *en masse* is mentioned.

This may mean many things, but probably points to a lessened practice of taxis in incarcerated cases.

Then, too, in recent years, as a result of employers' rules, a great many more hernias are repaired while still comparatively recent and consequently small. It is the old hernia that contains the large intestine, the bladder and the cecum, and it is the elderly person that more often has a reduction en masse. This is borne out in this series of twelve cases as well as in the larger and older series.

These cases showed the common symptom of slight relief after reduction and there was a bowel evacuation in two in which the hernia was of the Richter type; but they all soon showed increasing obstructive symptoms, which were diagnosed as due to adhesions, bands, etc., rather than to the true cause.

In all the cases the reduction was described as occurring differently from the usual custom. In these cases reduced by the patients, it was stated that the hernia did not go back as easily as usual, and in one case reduced by the physician, it is stated that the reduction gave the sensation of a button slipping through a button hole.

To these cases I add the report of a case which shows some additional interesting features:

REPORT OF CASE

History.—W. S., a man, aged 20, colored, had been seized, two days before admission to the Howard Hospital, with cramplike pains in the abdomen. About three hours later vomiting began and had continued until the time of his admission. The bowels had not moved since the attack began. The patient said he had a chill and had had fever. A physician pronounced the case one of acute appendicitis and sent him to the hospital.

Physical Examination.—The general examination had no bearing on the case. The abdomen, however, was distended, tender and tympanitic. The left inguinal region was somewhat fuller than the right. The patient, on being questioned, stated that he had had a hernia on that side since childhood, and that it was always easily reducible when it came down. It came down at the beginning of this attack, and was very much larger than it ever had been before, and went back very slowly under manipulation three hours after the attack began. He could not state definitely which occurred first, the vomiting or the appearance of the hernia. Peristaltic sounds were increased in character and frequency. Tenderness was noted in both iliac regions, but most marked on the left. The slight fulness in the left inguinal region was a somewhat thickened, edematous spermatic cord. No hernia was demonstrable. On deep palpation above the left Poupart's ligament, an increased massive resistance was noted.

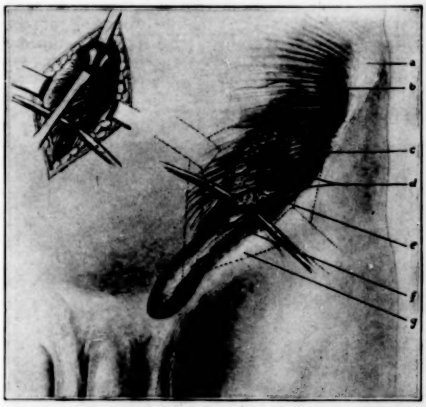

Fig. 2.—The inset shows the incision necessary for the liberation of the intestine. Below is indicated the state of affairs as seen at operation. The dotted line (*g*) illustrates the wound through to the internal oblique (*b*); *c* represents the Richter hernia, covered by the internal oblique and transversalis muscle and still in the grip of the sac neck, which has been pushed up from its old position in the internal ring; *d* is omentum shown hidden above and exposed at the sac opening (*f*) at the internal ring.

Blood count revealed 10,200 leukocytes. The temperature was 100; pulse, 110; respiration, 14.

Operation and Result.—Incision was made as for a left inguinal hernia. The cord was edematous, and the sac contained some blood-tinged fluid. Projecting into the upper limit of the sac was a tab of congested omentum. Traction on this, which was situated at the internal ring, pulled out from under the muscle an edematous congested mass of

1. Corner and Howitt: Ann. Surg., 1910.

omentum the size of a small orange. This was again reduced, but because it did not go back and free the ring it was again drawn out and ligated through normal omentum. On endeavoring to push the ligated stump back, the finger encountered a closed sac beneath the muscles, with a small immovable knuckle of intestine at its deepest part, about 3 inches (15 mm.) above the ring.

Traction on the sac would not bring this constriction with the imprisoned intestine up to the internal ring without danger of tearing the obstructed intestine. A gridiron incision was made above, the peritoneum opened, and the constricting neck severed from within.

It was a Richter's hernia of the ileum. After application of hot salt solution for a few moments, the intestine showed vitality and was returned to the abdomen. Repair was made by Bassini's method, and the patient's recovery was uneventful.

330 South Sixteenth Street.

PERICARDITIS WITH EFFUSION

A CLINICAL STUDY OF TWENTY-THREE CASES *

CHARLES SPENCER WILLIAMSON, M.S., M.D.
CHICAGO

The present clinical study of pericarditis with effusion was suggested by an experimental study completed two years ago, and published about a year later.

The points with which our experimental study chiefly concerned itself were: (*a*) the point at which the exudate accumulates earliest, and the effect of such accumulation on the adjacent organs, particularly the liver; (*b*) the existence of a dulness in the fifth right interspace (Rotch's sign) or the rounding of the cardiohepatic angle (Ebstein); (*c*) the position of the heart in the exudate; (*d*) the behavior of the dulness over the great vessels, and (*e*) the relationship of an audible friction rub over the front of the heart to the fluid accumulation.

Fig. 1.—Casts of the injection masses in a typical case: *A*, the heart; *B*, the exudate proper; *C*, the exudate, bisected in a sagittal plane. Note the accumulation of fluid in the costodiaphragmatic angle, and also that even with this size exudate the front of the heart remains uncovered.

In regard to the point at which the exudate first accumulates, it is obvious that while accumulations of fluid about the apex and around the right border of the heart, or even over the great vessels, can be fairly well made out by percussion or by use of the roentgen ray, both of these methods of investigation fail when used to determine the presence of an exudate in the costodiaphragmatic angle, as the dullness on percussion, or shadow of the roentgenogram is continuous with that of the heart above and liver below.

In our experimental research it had been noted with great uniformity that the exudate first appears in the costodiaphragmatic angle, the left lobe of the liver being pushed down and rotated in such a way as to push down the anterior margin most, the right lobe remaining in its normal position.

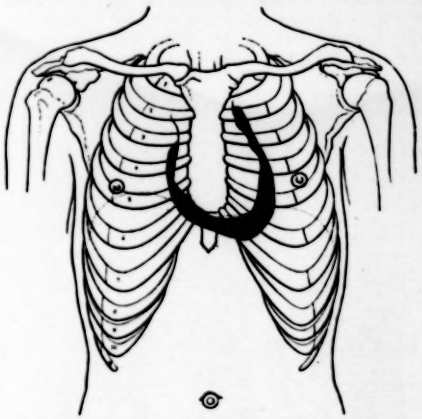

Fig. 2.—Projection of the heart and exudate of Figure 1 on a chest outline. Note here again how the diaphragm and the liver would be depressed.

The cut, one of a considerable number not published in the original experimental work,[1] shows in a striking manner the place in which exudate first accumulates. The work was done on fresh cadavers by the injection of a suitable agar-gelatin solution. When hard, this was frozen and casts made of the exudate, of the heart itself, and then of the two together.

In Figure 1, *A* represents the heart, *B* the exudate, and *C* a sagittal section of the exudate, the anterior surface facing away from the others. In the latter the position of the exudate in the costodiaphragmatic angle, and also over the great vessels, is beautifully shown. The outline represents the heart and exudate placed in situ on a chest outline drawn accurately to scale. A glance will show that even with exudates of moderate size (about 500 c.c.) as this one was, the amount of depression of the left lobe of the liver will be more than an inch (2.5 cm.).

The first few injection experiments indicated plainly that this depression of the left lobe of the liver would be a valuable early diagnostic sign, if it could be recognized clinically, and even before the experimental work was finished we had convinced ourselves that this was actually the fact; but at that time the number of cases studied was hardly sufficient to warrant definite conclusions.

Eliminating all doubtful cases, we have studied twenty-three patients with pericardial effusions of various sizes. Of these, eighteen showed clearly and

* Read before the American Society for Clinical Investigation, May 9, 1921.

1. Williamson, C. S.: Pericarditis with Effusion, Arch. Int. Med. 25: 206 (Feb.) 1920.

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unequivocally a pushing down of the left lobe of the liver as determined by light percussion. This was most striking in the effusions which developed while the patient was under treatment for other conditions, such as polyarthritis, recurrent endocarditis, and chorea. In this group, at the very first intimation of a pericardial friction rub, the position of the liver border was carefully mapped out, and in all cases in which the exudate was of any considerable size, the progressive lowering of this border could be clearly noted. On the average it amounted to two finger breadths in extent. In all but two cases, at the time when this sign was plainly manifest, the cardiohepatic angle was still obtuse, or at most, a right angle. In the five instances in which no pushing down of the liver could be noted, the effusion was a small one, and in none of these could any change be noted in the Ebstein angle. In one patient with no other sign than a depression of the liver of a full finger breath, 240 c.c. of fluid were aspirated. It is obvious that in the group of cases in which a fluid effusion was already present when the patient first came under observation, the demonstration of the pushing down of the liver was not so striking as when this displacement had been observed day by day. It is evident that in the presence of a broken compensation, with consequent enlargement of the liver, this sign could not be properly applied, as diagnostic of an effusion.

The behavior of the cardiohepatic angle was as follows: In the five instances in which no pushing down of the liver could be noted, there was no change in the Ebstein angle. In the remaining eighteen cases, five showed a definite rounding of this angle, but only after the effusion had attained a size of approximately

Fig. 3.—Large pericardial effusion. A loud rub persisted over the whole anterior surface. Diagnosis was confirmed by aspiration.

500 or 600 c.c. In the other thirteen cases, with a pushing down of the liver easily demonstrable, the Ebstein angle remained either acute or at most a right angle.

The behavior of the dulness over the great vessels gives considerable valuable information. An increase of this dulness was noted in nine instances, not only in the sense that the dulness was more absolute, but also in the sense that the transverse diameter of the great vessel dulness was increased. It could occasionally be made out with quite small exudates, and in one case was made out simultaneously with the initial pushing down of the liver. The behavior of the dulness in the erect and recumbent position varies. In some cases it seemed more marked in the erect, and

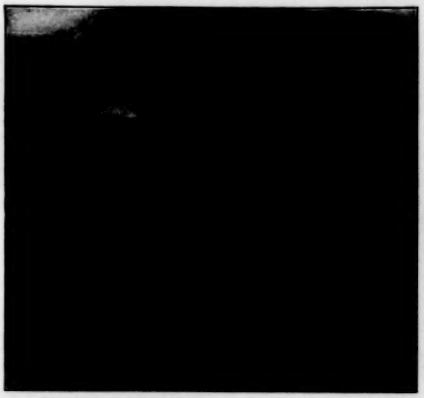

Fig. 4.—Large pericardial exudate, confirmed by aspiration. Loud rub persisted even at the height of the effusion.

in some in the recumbent, and in still others, the position seemed to exert no influence.

An audible friction could be heard, even at the height of the effusion, in fifteen cases. A number of these were instances of very large effusions. This behavior has been noted a number of times before, especially in a noteworthy case recorded by Thayer. A perusal of the literature, however, gives no indication that it is generally known that a friction rub not only may persist with quite large exudates, but that, as a matter of fact, actually does persist in more than two thirds of the cases. We believe that we were the first to show in our experimental work that the reason for this usually lies in a disproportionately large heart, and hence most frequently occurs when the pericardial effusion complicates a preexisting valvular lesion. Experimentally we found that in fourteen of the thirty-three injections, the anterior surface of the heart, in spite of the exudate, remained, at least in part, uncovered by the fluid, so that a pericardial friction rub could readily exist. This experimental ratio is actually less than that which exists clinically. We have seen two striking cases in which a sudden death occurred, the necropsy disclosing, as the cause of death, pressure on the auricles due to the fluid. In both these instances it had been assumed that there was no fluid in the pericardial sac, because a loud rub was everywhere audible. A paracentesis pericardii might have saved life in each case.

SUMMARY

1. In pericarditis with effusion, the fluid accumulates earliest in the costodiaphragmatic angle. This is manifested clinically, in all but very small effusions, by a pushing down of the left lobe of the liver, which serves as a useful diagnostic criterion.

2. This sign can nearly always be observed before any rounding of the cardiohepatic angle or any increase in the great vessel dulness occurs. The extent to which the edge of the liver is depressed amounts to about two finger breaths, with effusions of 500 or 600 c.c.

3. A pericardial friction rub not only may, but does persist with fairly large effusions in about two thirds of the cases. This is especially true when, for any reason, there is a disproportionately large heart, so that the latter organ comes into close apposition with the sternum.

4. Pressure signs over the lungs posteriorly occur only with much larger effusions than the signs already enumerated.

25 East Washington Street.

A NOTE ON THE VENEREAL SPIROCHETOSIS OF RABBITS

A NEW TECHNIC FOR STAINING TREPONEMA PALLIDUM *

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NEW YORK

Ross and Bayon,[1] in England, were the first (1913) to call attention to the occurrence in rabbits of a spontaneous disease presenting certain resemblances to experimental syphilis and associated with a spiral organism morphologically indistinguishable from *Treponema pallidum* of human origin. Soon afterward, Arzt and Kerl[2] in Austria published observations of a similar nature, and recently several workers, Jacobsthal[3] and Schereschewsky[4] in Germany and Klarenbeek[5] in Holland, have confirmed the existence of the disease, but up to the present no instances have been recorded in America.

Fig. 1. — Treponema cuniculi, stained with fuchsin after fixation in a buffered formaldehyd solution; × 1,000.

Fig. 2.—Treponema pallidum from human chancre, stained by the same method, for comparison; × 1,000.

In June, 1921, I found, among fifty rabbits of the so-called normal stock of the Rockefeller Institute, three females and two males having spontaneous lesions of the anogenital region containing an organism resembling *Treponema pallidum*. Recently (November, 1921) six females among twenty rabbits just purchased in Pennsylvania were found to have similar lesions. The observations may be of interest to workers on experimental syphilis.

The lesions are situated on the vulva or prepuce and appear as scaly, papular, somewhat congested spots or patches, slightly elevated from the surrounding mucocutaneous surface; they are not indurated to any marked extent as are usually the lesions produced by *Treponema pallidum* in similar regions. There is at first no exudate, but mechanical irritation of any kind induces a hyperemic condition of the lesions, and the dry scales fall off, leaving an exposed, granular surface. The exudate dries rapidly and forms a shining crust, dark gray or yellowish, removal of which is followed again by exudation, appearance of minute ecchymoses, and crust formation. In chronic cases the lesions may cover the entire genital region and extend to the anus.

The minute initial papules, as well as the advanced lesions with crust, contain very large numbers of organisms perhaps slightly coarser and longer than the average type of *Treponema pallidum*. The length varies from 10 to 18 microns, the majority being from 12 to 16 microns, as compared with a length of from 10 to 12 microns for the average *Treponema pallidum*. Individuals as long as 30 microns have been observed (specimens of *Treponema pallidum* as long as 24 microns have occasionally been encountered in experimentally infected rabbits). The width is about 0.25 micron, spiral amplitude from 1 to 1.2 microns, spiral depth from 0.6 to 1 micron; the spirals, from eight to twelve in number, are regular and deep. Rapid rotation and occasional bending at the middle are observed, but no vibratory or lashing movements. The organism belongs to the genus *Treponema*, and may be designated as *Treponema cuniculi*.[6]

The staining properties of *Treponema cuniculi* are identical with those of *Treponema pallidum*. As in the case of *Treponema pallidum*, silver impregnation of tissues gives inconstant results, and films from fresh material fixed in methyl alcohol take a pale stain with Giemsa solution and none at all with other anilin dyes. A new procedure has been worked out by Miss Evelyn B. Tilden in my laboratory by which both *Treponema cuniculi* and *Treponema pallidum* can be stained very distinctly not only with Giemsa solution but also with basic dyes, such as gentian violet and fuchsin (Figs. 1 and 2.). The procedure promises to be of practical value in the routine diagnosis of syphilis, when the dark field is not available, because of its simplicity. A buffer solution containing formaldehyd (1 part of formaldehyd solution in 9 parts of phosphate buffer solution[7]) is used as fixative, the scraping or tissue emulsion being suspended in a small amount of the buffered formaldehyd solution and the mixture allowed to stand for at least five minutes (the longer the fixation the better the results; the organisms remain well preserved for at least two or three weeks). Thin films are made on clean slides, dried in the air, the film surface is flooded with a saturated alcoholic solution of gentian violet or fuchsin, or with Stirling's solution of gentian violet such as is used for Gram's stain, and the slide is almost immediately washed in running water and air dried. If the amount of material available is very small, a drop of

* From the Laboratories of the Rockefeller Institute for Medical Research.

1. Ross, E. H.: Brit. Med. J. **2**: 1653, 1912. Bayon: Ibid. **2**: 1159, 1913.
2. Arzt, L., and Kerl, W.: Wien. klin. Wchnschr. **27**: 1053, 1914.
3. Jacobsthal, E.: Dermat. Wchnschr. **71**: 569, 1920.
4. Schereschewsky, J.: Berl. klin. Wchnschr. **57**: 1142, 1920.
5. Klarenbeek, A.: Ann. de l'Inst. Pasteur **35**: 326, 1921.
6. Jacobsthal proposed the rather cumbersome name, "Spirochaeta paraluis cuniculi," but the consensus of opinion now is that organisms of the pallidum type do not belong to the same genus as Ehrenberg's Spirochaeta plicatilis.
7. Eighty-eight parts of M/15 Na_2HPO_4 + 12 parts of M/15 KH_2PO_4 (*p*H 7.6). Nine parts of this solution are added to 1 part of commercial formaldehyd solution. The mixture keeps well for from two to three weeks at room temperature.

the fixative (from a capillary pipet) may be put on a slide and a drop of the exudate added. The mixture is allowed to stand for five minutes or longer (protected from evaporation) and then spread into a very thin film. The less blood serum present, the better the differentiation between the organisms and the background. If Giemsa solution is used for staining, the slides are left in the staining fluid for one hour, as usual. It may be mentioned that the organisms remain well preserved for at least two or three weeks in tissues fixed in buffered formaldehyd solution and may be teased out for dark field examination or for staining by the procedure outlined above. They take a more intense stain when teased out of tissues.

Transmission of the rabbit disease to normal rabbits has been accomplished both by mating and by smearing the exudate, viscid vaginal secretion, or an emulsion containing the spirochetes on the prepuce or vulva, either with or without previous scarification. The scarification method has given the largest number of positive results. The lesions are identical with those occurring spontaneously and contain large numbers of the organisms. The incubation period varied from twenty to eighty-eight days, the average in sixteen rabbits being sixty days, but on the third passage with one of the strains a definite lesion appeared in five days. The inguinal or popliteal lymph nodes are seldom palpable in these animals. Attempts to produce orchitis, keratitis or chancre on the scrotal skin have so far (from five to six months) been unsuccessful. Several monkeys inoculated from five to six months ago (eyebrow, prepuce, ventral skin) remain free from any indications of infection.

Histologic study shows accumulation of mononuclear cells, chiefly in the interpapillary spaces, a condition recalling condyloma.

Arsphenamin, given intravenously in a dosage of 0.02 gm. per kilogram of body weight, destroyed the spirochetes in the lesions within twenty-four hours. The lesions healed completely within seven days, and no recurrence has been observed during a period of five months.

A rather striking fact is that the serums of rabbits harboring large numbers of *Treponema cuniculi* in the genital lesions, even for as long as from five to six months, give negative Wassermann reactions, while, with the blood of rabbits having scrotal chancres, strong positive reactions are obtained. It is possible that this fact, together with the difference in the character of the lesions and the slightly larger size of the organism, may serve to differentiate between experimental syphilis and the *Treponema cuniculi* infection in rabbits.

Herxheimer Reaction.—The Herxheimer reaction is as much a feature of late syphilis as of the acute infection. In general, it is conservative to give all individuals affected with late syphilis mercurial preparation.—J. H. Stokes, *Arch. Dermat. & Syph.* **4**:779 (Dec.) 1921.

Clinical Notes, Suggestions, and New Instruments

UNUSUAL INSTANCE OF FOREIGN BODY PENETRATING THE HEAD

J. A. HAGEMANN, M.D., PITTSBURGH

Sept. 4, 1921, H. R., an Italian, was brought to the Pittsburgh Hospital by the police, who stated that he had just been stabbed in the left temple during a fracas with some of his countrymen. The first physician who saw him at the hospital suspected a fracture of the skull, although there were no symptoms to suggest it. To determine this point the patient was taken to the roentgen-ray room. The film revealed the presence of a foreign body, probably metallic, situated transversely in the middle of the head. September 6, the patient was referred to me. At this time there was considerable proptosis of the left eye globe, with edema of the bulbar conjunctiva within the open palpebral fissure. Vision for fingers was unimpaired. After the nasal mucous membrane had been shrunk and a Killian nasal speculum employed, the sharp edge of a metallic blade could be seen in both nostrils about 2 inches (5 cm.) within the nose, and about 1¼ inches (3 cm.) above the floor. By hooking a silver probe, bent to a right angle near its tip, over the inmost, blunt edge of the blade, then, parallel with it, placing a blunt probe against the sharper, presenting edge of the blade and removing the two probes juxtaposed from the nose, it was ascertained that the blade was one-half inch (1.3 cm.) in width. As extraction by the route of entry would jeopardize, if not destroy, the sight of the left eye, it was decided to approach the pointed end of the dagger by way of the right maxillary antrum. For this purpose, the patient being anesthetized, an incision to the bone was made one-half inch (12.7 mm.) above the gingival margin, and extending from the right canine to the second molar tooth. The mucous membrane was elevated and, with a Hajek chisel, an opening into the antrum was made through the canine fossa. This aperture was quickly enlarged to the size of a five-cent piece by means of a rongeur. When the incidental blood had been sponged from the antrum, about three-quarters inch (19 mm.) of the blade, including its point, could be seen in the posterior and upper portion of the sinus. It was so firmly impacted that one could not budge it with forceps. The tip of a curved antrum rasp was, therefore, inserted behind that portion of the blade protruding into the antrum and forcible traction made in a forward direction. By alternately levering the blade in this way, and oscillating it with forceps, the point of the dagger was brought out through the perforation at the canine fossa and the invader in this manner delivered. The antrum was packed with 5 per cent. iodoform tape and the wound closed with three catgut sutures. The packing was withdrawn forty-eight hours later.

The proximal, broken end of the dagger immediately under the left eyeball, the point projecting into the right maxillary sinus.

An ice cap was kept against the right cheek for two days. The edema of the left conjunctiva persisted for about a week. The patient made an uneventful recovery and was discharged from the hospital, September 18.

The weapon, devised by grinding one margin of a flat file to a keen edge and the end to a sharp point, had entered the left side of the head about 1½ inches (3.8 cm.) behind the external canthus, and about one-half inch (1.3 cm.) above the zygomatic process of the molar bone. The point pierced

the temporal muscle and the great wing of the sphenoid bone, and traversed the floor of the orbit; it then penetrated successively the left ethmoid bone, the nasal septum, and the right ethmoid bone, and projected about three-quarters inch (19 mm.) into the hindermost superior portion of the right maxillary sinus. In the conflict, the blade broke at a point on the floor of the left orbit, and the section nearer the handle was extracted or fell out. The presence of the pointed end of the dagger was not suspected until revealed by the roentgeonogram. The extracted piece measured 2¾ inches (7 cm.) in length, one-half inch (1.3 cm.) at its greatest width, and was three thirty-seconds inch (0.024 cm.) thick at the blunt edge.

Highland Building.

A MACROSCOPIC AGGLUTINATION METHOD IN CAPILLARY TUBES *

FREDERICK L. GATES, M.D., NEW YORK

In 1918, a study of prophylactic antimeningococcus vaccination and of the meningococcus carrier state[1] involved an extensive series of agglutination tests on human serums. Only small samples of serum, from 1 to 2 c.c., were available, and as these had to be examined after different intervals of time, and in successive low dilutions, it was necessary to employ a method requiring a minimum amount of material. For this purpose the capsule method of agglutination, briefly described at the time, was developed and found to be reliable and satisfactory.

Since then the method, modified somewhat in the direction of accuracy and simplicity, has been applied in a number of experiments with various organisms when limited amounts of serum or bacterial suspensions were available. Its demonstrated advantages over microscopic methods and the ease

Fig. 1.—Aspiration of a drop of serum and bacterial suspension from a paraffin plate into a capillary tube. The elastic band constricting the nipple to fit the tube, the position of the nipple for accurate control of the liquid and the drops of serum and of bacterial suspension, before mixing, are to be seen

with which large numbers of specimens are prepared and examined have led to a separate report on the method in which the technic may be described in detail.

Capillary tubes have previously been used for macroscopic agglutination, but so far as I am aware no general method has been developed which is easily applicable to an extensive series of tests with successive serum dilutions. Thus, Ellis,[2] in 1915, in a study on meningococcus classification, made macroscopic agglutinations with equal quantities of undiluted serum and rather thin bacterial suspensions which were drawn into a capillary pipet, thoroughly mixed on a glass slide and the mixture again drawn into the pipet, the tip of which was then sealed in the flame. The tubes were read immediately and then left at room temperature, readings being again made at the end of one hour and on the following morning.

It is evident that the use of a separate capillary pipet for each specimen, in which it is individually measured, mixed, sealed and incubated, involves a prohibitive amount of labor when many tests are to be made.

THE CAPSULE METHOD OF AGGLUTINATION

Successive serum dilutions, as many as are required, are made in small test tubes or, if necessary, in amounts of a drop or two on a paraffin plate. Graduated pipets may be used, or a number of Wright pipets may be calibrated for equal quantities of fluid by placing large drops of salt solution, measured in one marked pipet, at intervals on the smooth surface of paraffin wax in a Petri dish. A drop is drawn into each pipet and its length indicated by a file scratch or a wax pencil mark. The advantage of the paraffin surface is found in the fact that the entire drop may be taken up, and in the ease with which a fresh, clean surface may be prepared by rinsing off a thin layer of paraffin with hot water. When pathogenic micro-organisms are under test, heavy waxed paper, which may then be destroyed, serves the same purpose. One pipet is used for salt solution and one for each different serum and each bacterial suspension employed. The liquid in a Wright pipet may be delicately and accurately manipulated if the nipple is bent double and held as in Figure 1.

A B

Fig. 2.—Agglutination of B. typhosus in its antiserum. Complete agglutination in Capsule *A*; unagglutinated control specimens in Capsule *B*.

The standardized pipets are used to dilute the serum successively, and to measure out equal quantities of serum dilutions and bacterial suspensions, which are placed opposite each other in parallel rows on the paraffin plate. Beginning with the highest dilution, each drop of serum is mixed with its opposite drop of bacterial suspension by means of a platinum hook (not a loop).

Incubation of these mixtures is carried out in capsules 12 cm. long, of thin walled glass tubing, 2 mm. inside diameter, pulled out and sealed off in the flame.

The ends of a capsule are snapped off close to the shoulder, and one end is slipped into a rubber nipple whose neck has been constricted by a tight elastic band. Beginning with the salt solution control or with the most dilute serum mixture, successive columns about 1 to 1.5 cm. long, separated by air bubbles of equal length, are drawn up into the capsule (Fig. 1). Before the nipple is released, the distal tip of the capsule is sealed off in a small flame and the nipple then slipped off

* From the Laboratories of the Rockefeller Institute for Medical Research.

1. Gates, F. L.: J. Exper. Med. **28**: 449 (Oct.) 1918.

2. Ellis, A. W. M.: Brit. M. J. **2**: 881, 1915.

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carefully so that atmospheric pressure is maintained in the tube. The proximal end is also sealed off and marked with a file for identification.

These sealed capsules, each containing four or five specimens, are then woven through holes in a card which designates their contents. They are incubated in a horizontal position, and unless the card is dropped or rudely handled, no appreciable admixture of the specimens occurs. Tests with methylene blue show that an air bubble 0.8 cm. long is an effective barrier. The surface tension at each meniscus keeps the specimens apart. They may be separated by columns of liquid petrolatum, if desired, of which a length of 0.4 cm. is sufficient, but the air bubbles are practically effective.

When the density of the bacterial suspension (about 2 billion organisms per cubic centimeter) has been properly chosen to produce a visible, even clouding of the capillary columns, the presence of agglutination is as readily determined, macroscopically, as in the standard methods of test. Viewed by oblique, transmitted light against a dark background, unagglutinated organisms appear homogeneous; or, if sedimented, they form a narrow, sharply outlined zone on the lower inside surface of the tube. If the capsule is rolled horizontally between the palms, the bacteria are evenly dispersed through the liquid. Agglutination, on the other hand, is indicated by clumps of flocculated organisms, which form a wide, feathery layer of sediment with broken edges and are not homogeneously dispersed on resuspension (Fig. 2). All degrees of agglutination may be recognized. In comparative tests with the same materials, the results of capsule agglutinations have coincided with the standard tests.

Most methods of agglutination which require only small amounts of serum or bacterial suspension are suited only to the immediate demonstration of agglutinins, and therefore are useful only with serums of high antibody concentration. It is hoped that the capsule method, which permits the full range of variation in serum dilutions and incubation of the standard tests, may be of practical value in other hands in demonstrating the presence of agglutinins in serums of low titer. In this connection it may be pointed out again that fresh serum in low dilutions may inhibit agglutination (the pro-agglutinoid zone) and that after storage a serum previously found negative may reveal its antibody content.

SUMMARY

This macroscopic agglutination technic requires the use of only small amounts of serum dilutions and bacterial suspensions. The specimens are sealed in small glass capsules, so that evaporation is prevented, and the method affords all the quantitative advantages in point of measured serum dilutions and incubation of the standard methods of test.

A NEW SYRINGE FOR LOCAL ANESTHESIA

ITS PRACTICAL APPLICATION

LOUIS DUNN, M.D., MINNEAPOLIS

The desirability and safety of local anesthesia is well established among those who are familiar with its advantages. Its more extensive employment has been curtailed by the lack of a suitable apparatus. The ordinary glass syringe has been the only equipment available. It is no wonder, therefore, that the profession has shown lack of enthusiasm for local anesthesia in major surgery.

The pneumatic injector invented by Dr. R. E. Farr furnishes surgery with an unusually efficient instrument for local anesthesia. It consists of a solution receptacle and a compression gas tank as the driving force. Another instrument recently devised for local anesthesia is the Babcock self-filling syringe. This also consists of a fluid container, and uses the gravity method to fill the syringe.

My interest in the development of a satisfactory device led me to devise an apparatus based on an entirely different principle, and resulted in the construction of a very efficient instrument. It has been tested by four years of service and has given most gratifying results at all times.

The apparatus consists of a needle, syringe and connecting valve chamber, enclosed in a perforated metal case of pocket size and capable of sterilization as a unit.

The needles are noncorrosive and are made of hardened gold. The smaller type has a Luer slip hub which is attached directly to the syringe and with which an intradermal wheal is made. The longer type is attached to the valve chamber by a screw thread and is used for deep infiltration. There are twelve needles. Four of these are short Luer needles with sharp points for intradermal work. Two are long Luer needles for deep intra-abdominal work. The others have screw hubs, are larger gaged, and are long enough for deep infiltration.

The barrel and plunger of the syringe are made of an extra tough green glass that stands high temperature. The metal mountings are actually fused to the ends of the glass parts.

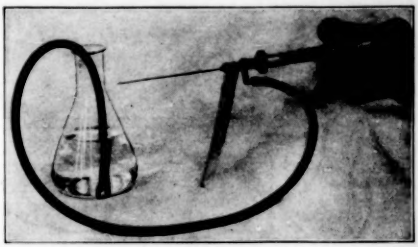

Fig. 1.—Syringe connected to valve by a bayonet attachment; weighted end of rubber tube in solution.

It is tested to a pressure of 75 pounds per square inch. It will not leak or break on boiling.

The automatic drop valve is the key to the whole apparatus. It is situated in its T-shaped chamber between the screw hub needle and the syringe. The valve proper is in that portion of the chamber which is perpendicular to the instrument. A rubber tube of approximately 2 feet (or any convenient length) connects this chamber to the receptacle containing the fluid. The end of the tube is retained in the fluid by a weighted metal end. The receptacle is held at whatever angle the surgeon desires. The valve itself is of the drop type and is made accessible by a milled-head screw on the top of the valve chamber. It operates in any position of the syringe.

Fig. 2.—Case containing syringe, valve and needles, ready to be sterilized with other instruments.

The outfit is as easy for the operator to handle as its construction is simple and substantial. The entire outfit is sterilized in its perforated metal case, thereby protecting the syringe and needles against injury.

The syringe is attached to a sharp-pointed Luer needle, and an intradermal wheal is made with little or no pain to the patient. The small needle is then removed. The long needle is screwed into place on the valve chamber, and this in turn is slipped over the Luer tip of the syringe and locked firmly into place by a bayonet pin-and-slotted joint. This arrangement insures stability and rigidity. The needle is submerged in the fluid together with the weighted end of the rubber tube. A few strokes of the plunger fill the syringe and expel the air. The assistant or nurse holds the

receptacle containing the fluid at any level convenient to the operator.

The needle is then introduced through the wheal. With a piston-like movement of the forearm, the solution is injected in a steady stream as the needle is kept on the move. By withdrawing the needle to the skin and redirecting it at a different angle, a large area may be infiltrated. A wall of fluid is placed in any direction by a repetition of this movement. As the needle is withdrawn to the wheal, the glass plunger is simultaneously retracted by the thumb. The ensuing suction causes the tissues to act as a valve which prevents the fluid returning into the syringe from them. At the same time the suction induced by the retraction of the plunger opens the automatic drop valve and refills the syringe from the reservoir through the rubber tube. The forward motion

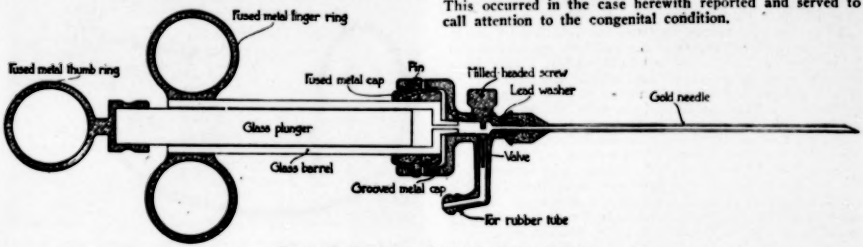

Fig. 3.—Sectional view of local anesthesia syringe.

of the thumb in pressing the plunger "home" closes the automatic drop valve and forces the fluid through the needle into the tissues. Only one valve, therefore, is required for the apparatus. The small diameter of the barrel makes it a powerful syringe and at the same time permits small quantities of fluid to be delicately and accurately deposited. The small diameter of the syringe is essential to insure an even distribution of fluid and to prevent distortion of the tissues by edematization. Up to the present, the even distribution of small quantities of fluid has been obtained only by the Farr pneumatic injector. The Dunn syringe produces anesthesia easily and promptly, without discomfort to the patient or withdrawal of the needle.

The cleansing of the instrument with clear water at the conclusion of the operation must be done thoroughly, or the solids in the solution may either be deposited in the needle or on the valve, causing the latter to stick on drying. Although the valve can be loosened readily by removing the milled head screw of the chamber, this loss of time is prevented by washing the instrument with water before it is put away.

I have found this apparatus advantageous in the following respects:

1. It is durable and simple in construction.
2. It can be operated and directed entirely with one hand.
3. The automatic valve makes it possible to produce a wall of solution without detaching the syringe or without withdrawing the needle for refilling.
4. The automatic valve makes practical the use of the small diameter syringe.
5. The 3 c.c. capacity of the syringe enables the operator to place a small amount of fluid accurately and easily where he desires.
6. The glass syringe enables the surgeon to detect blood or air in the barrel.
7. The bayonet attachment permits the instantaneous removal of the syringe in order to remove the air bubbles.
8. The perforated metal case containing the entire apparatus can be carried in the pocket and can be sterilized as a unit.
9. It is so simple in its manipulation and so reliable in its action that it does not require great skill for its operation.
10. It is particularly valuable where trained assistants are not obtainable.

3040 Lyndale Avenue South.

BILATERAL CONGENITAL BACKWARD DISLOCATION OF THE LOWER END OF THE ULNA

HENRY L. HOLZBERG, M.D., SAN FRANCISCO
Surgical Assistant, Mount Zion Hospital

There is not a great deal of literature on this subject. According to Fosdick Jones,[1] there were only two authentic cases on record up to the time of his writing (1911). However, there have been a number of cases of habitual dislocation of the ulna reported.[2] This condition was first recognized by Desault, in 1771.

The great majority of these cases were studied before there were any roentgen-ray opportunities. Most of these cases come to medical attention through a traumatic incidence. This occurred in the case herewith reported and served to call attention to the congenital condition.

None of the cases reported up to date lay stress on the importance of an enlarged styloid process, from an etiologic point of view. However, there were no roentgenograms reproduced with any of the reports which would bring out this point. It am, therefore, reporting this case with illustrations, showing the congenitally enlarged styloid process to be responsible for the backward dislocation. This patient came to me with a history of trauma, and the true condition was not recognized at first.

REPORT OF CASE

History.—M. G., aged 21, single, born in Malta, employed as a metal sorter by a junk company, first complained of trouble with his right wrist, May 7, 1918. He thought he had

Fig. 1.—*A*, right wrist before operation, showing large styloid process; *B*, right wrist after operation.

injured his wrist by doing heavy lifting and asserted that something had snapped in the wrist. Examination at that time revealed slight edema of the right wrist, with slight

1. Jones, Fosdick: Bilateral Congenital Dislocation of the Lower End of the Ulna, Am. J. Orthop. Surg. **9**: 199, 1911.
2. Behrend, Moses: Habitual Dislocation of the Ulna, Pennsylvania M. J. **20**: 533 (May) 1917. Cotton, F. J., and Brickley, W. J.: Luxation of the Ulna Forward at the Wrist (Without Fracture), Ann. Surg. **55**: 368, 1912. Darrach, William: Habitual Forward Dislocation of the Head of the Ulna, ibid. **57**: 928, 1913; **58**: 801, 802, 1912. Jopson, J. H.: Subluxation of the Ulna, ibid. **60**: 785, 1914. Yoder, A. C.: Unique Wrist Injury: Recurrent Anterior Dislocation of Ulna, J. A. M. A. **61**: 767 (Sept. 6) 1913.

tenderness over the lower ends of both the radius and ulna and some general limitation of motion. Relief was obtained by strapping the wrist with adhesive plaster.

Six months later, the right wrist bothered him again. His complaints were the same. Temporary relief was obtained for a few months by the wearing of a leather supporter.

June 27, 1919, he again complained of inability to lift heavy pieces of metals. He said he had no power in his right wrist. Examination revealed marked prominence of the wrist over

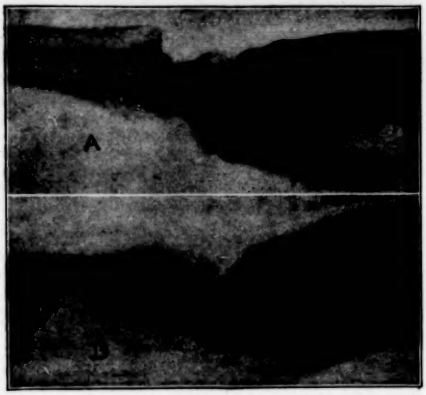

Fig. 2.—*A*, lateral view of right wrist before operation, showing displacement of lower end of ulna; *B*, lateral view of wrist after operation, showing no displacement with hand held straight.

the lower end of the ulna with the hand held in some pronation and slight adduction. The lower end of the ulna could be distinctly felt. There was an apparent dislocation of the lower end of the ulna. This dislocation could be readily reduced; but the lower end of the ulna would not remain in place. As soon as pressure over the lower end of the ulna was removed, the dislocation occurred. This dislocation also occurred on any tendency toward pronation.

Roengtenograms revealed dislocation backward of the lower end of the ulna (Figs. 1 *A* and 2 *A*). The Wassermann reaction and Noguchi control tests were negative. A leather supporter was made for the wrist and was worn for about one month, with no relief.

July 22, 1919, Dr. Leo Eloesser, in consultation, suggested drilling through the lower ends of both the radius and ulna and tying the two bones together with kangaroo tendon.

The patient was very nervous and of a distinctly neurotic type. After considerable persuasion he agreed to the operation.

Operation and Result.—This was performed, July 29, 1919, at the Hahnemann Hospital, where I was assisted by Dr. Friedman. Two small incisions were made on either side of the lower end of the forearm. The bones were exposed, the periosteum was incised and elevated. Two holes were drilled through the lower ends of the radius and ulna. Kangaroo tendon was inserted, and the two bones were tied together. The wrist joint itself was not entered. The wrist was put up in plaster, with the hand in supination and rotated slightly laterad. Roentgenograms were taken nine days later (Figs. 1 *B* and 2 *B*).

During convalescence the kangaroo tendon sloughed out from the wound on the radial side. Sept. 10, 1919, the patient attempted light work. He was unable to do any lifting and became very much discouraged.

Oct. 10, 1919, Dr. Harold Brunn, in consultation, called attention to the large styloid process of his ulna. Further examination revealed that the same condition existed in both wrists.

Roentgenograms of both wrists were taken. A study of these showed that he has a congenital bilateral enlargement of the styloid process of the lower end of the ulna. This enlarged styloid process impinges on the pisiform in pronation and ulnar flexion, and causes the dislocation backward of the lower end of the ulna. He has the same prominence on the back of the left wrist that he has on the right. The patient is right handed, and undoubtedly would have the same complaint with his left wrist if he used his left hand more.

The condition was explained to the patient and removal of the enlarged process was suggested; but after all these examinations, and treatment, the patient was more of a "neurasthenic" than ever and refused all treatment.

890 Geary Street.

AN AIR PRESSURE METHOD OF ADMINISTERING ARSPHENAMIN

JOHN G. BURKE, M.D., PITTSBURGH

The article of Dr. Spence G. Gill[1] on a modification of the gravity method of administering arsphenamin prompts me to describe an apparatus that I have been using for three years. I think that this apparatus embodies all the advantages that Dr. Gill claims for his, and is free from one disadvantage inherent in his apparatus, in that the solution passes through the bulb and the valves. Both of these, being of rubber, would be difficult to keep sterile and in working order, especially with a solution which decomposes as readily as arsphenamin.

The apparatus that I use is not a modified gravity method but depends altogether on air pressure and, as the illustration shows, consists of a 250 c.c. Erlenmeyer flask with a No. 5 perforated rubber cork, and two bent tubes, a short one and a long one. The short tube is connected by a piece of rubber tubing about 18 inches (45 cm.) long to a compression bulb taken from a blood pressure apparatus. The long tube is connected by a piece of rubber tubing about 30 inches (75 cm.) long to the side extension of a Kaufman-Luer syringe. A piece of glass tubing is inserted into this line about 8 inches (20 cm.) from its distal end. To withstand the air pressure, all joints are reinforced by a piece of light copper wire twisted around each connection, and a heavier piece of wire is twisted around the neck of the flask and one end is left long so it can be bent over the rubber cork and

Apparatus for administering arsphenamin by air pressure.

fastened so as to prevent the cork from coming out when pressure is applied (adhesive plaster may be used to fasten the cork, but the wire is preferable). It is also necessary to encircle the piston of the syringe with a piece of wire, as the clip that comes with the syringe will not stand the pressure.

The advantages of the Kaufman-Luer syringe are that the opening on the side one-half inch (12.7 mm.) back of the needle, where the arsphenamin solution enters, indicates

1. Gill, S. G.: Modification of Gravity Method of Administering Arsphenamin, J. A. M. A. 77: 464 (Aug. 6) 1921.

definitely when a vein has been entered; for if blood does not show when the piston is pulled back, one knows that a vein has not been punctured. When blood shows, one starts the flow of solution by drawing the piston back past the side opening. Another advantage of this syringe is that it is light and is easily handled and held by one hand, which leaves the other hand free to compress the bulb or do anything else that may be necessary. I use a 21 gage needle for a man; a 22 gage for a woman, and a 24 gage for a child (one size larger than an ordinary hypodermic needle). The smaller the needle, the greater is the pressure required; but this is readily obtained by compressing the bulb more frequently. With the use of the small needles a precipitate injection is impossible, and the caution of the Public Health Service to inject slowly is naturally met. Another advantage of this apparatus is that it can be used without an assistant, the patient reclining on a table and the operator sitting on a stool. If the apparatus is placed on a towel between the arm and the chest of the patient, the field of operation and the apparatus are all within the operator's vision and within easy reach of his hand, the flow of arsphenamin can be stopped by pushing the piston past the side opening, or the air pressure can be released by opening the valve on the compression bulb, and there is no occasion for looking up to see whether the solution is flowing, which movement often causes the needle to slip through or out of the vein.

Excepting the Kaufman-Luer syringe, which can be purchased at any instrument house, the parts necessary to make this apparatus can be obtained at small cost. Any physician should be able to put them together. The main point is to have it as air tight as possible.

I do not claim any originality in devising this apparatus, as several similar ones have been described; I have only assembled it from parts found in any physician's office or that can be easily procured.

8122 Jenkins Arcade Building.

FRACTURE FRAME

Lyman G. Barton, M.D., Plattsburg, N. Y.

This frame may be described as a combined "Balkan-Bradford" and was designed to carry out the technic employed by Dr. Joseph A. Blake in the treatment of fractures by suspension-traction. It has been used during the past nine months at the Champlain Valley Hospital and has been very satisfactory.

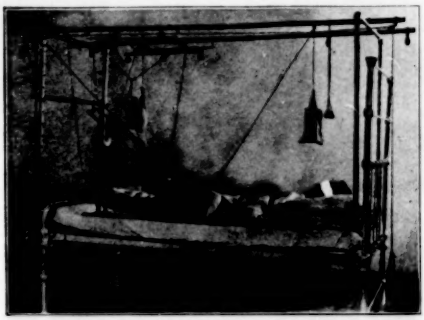

Fig. 1.—Assembly for thigh fractures with overhead trolley for one or both limbs.

The frame can be economically constructed, the only material used being ordinary gas pipe, with standard parts and fittings obtainable at any hardware establishment. No machining is required other than thread cutting and drilling.

Some of the advantages of this frame are: (1) quick assembly for all types of fractures, as the frame is an independent unit not requiring attachment to bed frame; (2) adjustable length (from 5 to 7 feet), the foot section sliding on the side members of the Bradford frame, thus rendering it adaptable to both adults and children; (3) easy application of accessory attachments, making possible every position required in this form of treatment; (4) elevation of the foot, if desired, by blocking up the foot of the frame instead of the bed; (5) increased facility in nursing care, since the patient may be easily elevated on this frame or even transferred to another bed without disturbance of the apparatus, and (6) compact closure for storage when not in use.

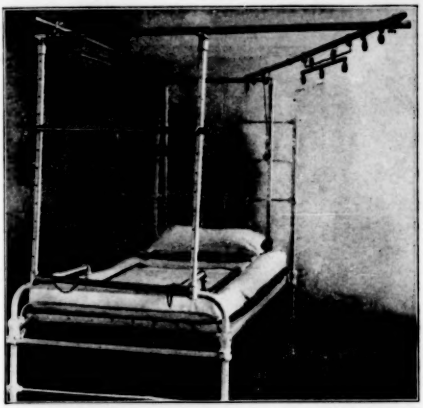

Fig. 2.—Assembly with side extension bar attachable to either end of top member for positions of extreme abduction.

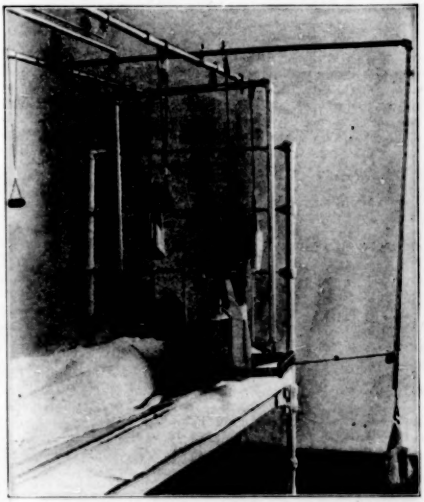

Fig. 3.—Assembly with outrigger for arm, adjustable for all degrees of abduction and rotation.

12 Margaret Street.

Special Article

REPORT OF THE COMMITTEE ON THE PREVENTION OF HEREDITARY BLINDNESS *

I. ORGANIZATION OF THE COMMITTEE

Two years ago, a paper was read before this Section "On the Relation of Hereditary Eye Defects to Genetics and Eugenics." Later a resolution was adopted, providing in substance for the appointment of a committee to report on the prevention of hereditary blindness—this committee being composed of an ophthalmologist, a geneticist, and a general surgeon.

One of those first appointed could not serve because of military duties; but his place was filled by another who had already written on certain operations in connection with this subject.

This central committee, in accordance with the resolution constituting it, has increased its membership, adding also some laymen.

II. SCOPE OF THE INQUIRY

As clear definition is important in this connection, it should be remembered that the term "hereditary" has been confined as far as possible to eye defects which have appeared in two or more generations. This evidently includes examples of what is called "a filial characteristic." That word, indicating, of course, descent from parent to immediate offspring, is confusing and should be discarded.

But this report has nothing to do with cases of blindness which are simply congenital. While it is true that hereditary blindness often is congenital, on the other hand, many cases of congenital blindness are by no means hereditary. The indiscriminate use of these terms by members of our profession has confused the literature and befogged our ideas concerning the whole subject.

III. PLAN OF STUDY

In any such work, evidently the first thing is to ascertain what has been already accomplished.

In the paper referred to, credit was given for the bibliographies already collected by Groenouw,[1] Libby[2] and especially by Loeb.[3] Additions to the list at that time brought the total number of references to more than 700. Considerable trouble has been experienced in the recent effort to bring this bibliography to date. This was especially because of the impossibility for a time of obtaining foreign journals, and the discontinuance, after the war began, of Nagel's *Jahresbericht der Ophthalmologie* and other valuable publications. That was one of the principal reasons for the delay in presenting this report.

In spite of these difficulties, however, the increasing interest and growing importance of the subject had added much to the literature, and made it possible to collect a bibliography now of about 800 references.

It was by no means an easy task to eliminate reports of simple congenital eye defects, and that necessitated the exclusion from this list of a large number of references heretofore quoted. But it is hoped that the bibliography is now practically complete.

In nearly all of the families reported, a number of individuals have inherited the eye defect described, so we have now a record of several thousand of such unfortunate persons, though not all of them are entirely blind in both eyes. The publication of such a bibliography is evidently not adapted to the transactions of this Section of the American Medical Association,[4] but the Eugenics Record Office of the Carnegie Institution has considered it of sufficient value to be published under its auspices as a special bulletin.

Other data collected by the committee are sufficient for several papers on the scientific, philanthropic, economic, and other aspects of hereditary blindness. But these data, like the bibliography, are more suitable for publication elsewhere.

Although a large part of this bibliography consists of reports of family histories of eye defects, on the other hand it shows that much new light has been thrown on this phase of heredity. The breeding experiments of Castle, Morgan and those by an entire group of workers in the department of genetics of the Carnegie Institution of Washington, at Cold Spring Harbor, form only a small part of this new material. The most recent and perhaps most striking results have been obtained by Guyer[5] at the University of Wisconsin. By serologic methods, he has produced cataract and other defects in the eyes of rabbits which have persisted into at least the sixth generation. And this is only one step in the rapid advance in the science of eugenics.

As the committee was charged only with the consideration of the prevention of hereditary blindness, we naturally ask whether the subject is worth considering at all. May it not be that the popular impression is correct, that the number of those that are blind from hereditary causes is so small, the cost of caring for them so trifling and any attempt at prevention so hopeless that the question is not worth discussing? Therefore, let us ask: About how many persons blind from hereditary causes are there in the United States; about how much is the annual cost of their care, and what, if anything, should we, as physicians and especially as ophthalmologists, do about the matter?

IV. NUMBER OF PERSONS BLIND FROM HEREDITARY CAUSES

In order to estimate the number who suffer from hereditary blindness, let us first ascertain the total number of blind from all causes. Taking the corrected returns of the last census, together with results of careful searches made by the commissions in New York state and elswhere,[6] and comparing those with the figures obtained by this committee in answer to a circular letter, it appears that the total number of blind persons in the United States is between 70,000 and 100,000. Campbell, one of the most careful students, placed it ten years ago at 100,000.

The proportion of blindness due to hereditary causes is more difficult to estimate. Data on this point have been gathered from various sources. It is a striking fact that earlier statisticians made this a comparatively small number; the estimate has been larger when made from data gathered by personal examination of the blind. Thus Paly[7] thought that proportion was about 5 per cent. of all of the blind. Another estimate was 8 per cent. Loeb,[8] in 1908, estimated it at between 5 and 10 per cent. of the total number.

Some years ago a careful examination was made of 306 pupils in the schools for the blind at Batavia and in New York City[9] by the chairman of this committee. It was found that in many of the cases in which the pupils were reported as having been "born blind," that statement concerning them was erroneous—theirs were simply cases of infant ophthalmia. But when other pupils were questioned as to the existence of blindness among their relatives, the answers given were such as to indicate that blindness due to heredity among these pupils, and among the older blind elsewhere, was much larger than 10 per cent. The total number examined was, however, far too small to enable one to draw conclusions.

But making allowance for all deductions, in order to put the estimate beyond criticism, let us place the proportion of hereditary blindness at 7.5 per cent. of the entire 70,000 to 100,000. In other words, the total of hereditarily blind in the United States ten years ago was from more than 5,000 to perhaps 7,500.

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* Read before the Section on Ophthalmology at the Seventy-Second Annual Session of The American Medical Association, Boston, June, 1921.

1. Groenouw, A.: Handbuch der gesamten Augenheilkunde, Graefe-Seamisch, Ed. 2, Part 1, **11**: 415.
2. Libby, G. F.: American Encyclopedia of Ophthalmology, **8**: 5812.
3. Loeb, C.: Ann. Ophth., 1909, p. 771.
4. Copies of this bibliography will be given with pleasure to members of the Section sufficiently interested to ask for it.
5. Guyer: Studies on Cytolysins, J. Exper. Zoology, No. 2, August, 1920.
6. New York Report of the Commission for the Blind, 1906, pp. 5 to 15 and 26; United States Census with subsequent bulletin, 1910; Campbell: The Annals of Political and Social Science, **37**: 517, 1911, and Best, Harry: The Blind, 1919, p. 5.
7. Paly: Die Blinden in der Schweiz, Ztschr. f. Schweiz, Statisk, 36.
8. Loeb, Clarence: Hereditary Blindness and Its Prevention, Tr. Am. Acad. Ophth. and Otolaryng., 1908, p. 264.
9. Twenty-Eighth Annual Report of the New York State School for the Blind, p. 56.

V. THE COST OF HEREDITARY BLINDNESS

This cannot be considered in detail here. Much could be written concerning it from data obtained by others, and in a small part also by our committee in answer to circular letters of inquiry.

Best[9] (p. 69) gives $30,725,000, "or in round numbers, nearly thirty-one million dollars as the total annual cost of the blind in the United States." Seven and one-half per cent. of this would be more than two million. But if we take statistics that have been carefully collected in Massachusetts and elsewhere concerning the average cost per year per blind person in and out of institutions, the total cost for the entire country would be considerably more than three million. In a word, we are probably safe in estimating the cost of hereditary blindness between two and three million dollars annually. To ensure moderate statement again, let us call it only two million. These estimates of number and cost are based on rough calculation. The figures are probably too small. They should be revised from the results of careful surveys.

Moreover, with our present negligence, we allow serious eye defects to be propagated without let or hindrance. One member[10] of this committee some time ago reported eight cases of glaucoma in one family. Now there are at least fourteen. He had operated on four of these patients and a colleague had operated on still another. In one branch of a family represented at the New York School for the Blind at Batavia, there were seventeen, in another branch also seventeen blind.[11] Any one who doubts the persistence with which this terrible heritage follows certain families, will find in the bibliography referred to, abundant and much worse examples, especially among those reported by Nettelship.

In view of such facts the question arises: Is it right? Is it fair for us physicians, posing as guardians of public health, to sit idly by, year after year, with folded hands, while human beings are brought forth to lives of misery, and large sums of public money are wasted?

In searching for a reply, naturally we think of our own duties and also of the advantages of legislation. Law makers are perhaps justly slow to be moved by considerations of philanthropy or of science. But they and the public respond promptly to an impression made on the pocket nerve. Therefore, let us summarize the foregoing and see to what conclusions and then to what recommendations we are led.

VI. SUMMARY AND COMMENTS

1. The literature on this subject includes about 800 articles, with records of cases of several thousand individuals with hereditary eye defects, most of them entailing more or less loss of vision.

2. Estimates made by this committee, with data obtained from other sources, indicate that there are in the United States from about 5,000 to 7,500 persons blind from hereditary causes.

3. The annual cost of caring for these, directly and indirectly, is not less than two million dollars.

4. It is unspeakably cruel to inflict blindness on innocent human beings and eminently unjust to load the cost of supporting them on the taxpayers. The desirability of at least lessening this double wrong is evident.

5. As ophthalmologists should be among the first to recognize such facts, it would seem to be their duty to enlist the cooperation of other physicians, of clergymen, teachers, legislators, indeed, to interest every taxpayer in an effort to lessen hereditary blindness by means of legislation or otherwise.

6. We all agree that education concerning the evil of dangerous marriage is one of the best remedies against it.

7. At present our elective or voluntary method of education in this direction is imperfect and ineffective. It is difficult to find any school, or college, in which the principles of eugenics are systematically taught.

8. There is at present no prospect of improvement in this branch of education, as long as it remains one of the elective studies.

9. Concerning the more direct methods of preventing these hereditary defects:

(*a*) Compulsory sterilizing operations cannot be recommended, because of their danger to the female and because of uneducated public opinion. When, however, men express a desire to have vasectomy performed (as has happened occasionally in certain states and for other purposes than the protection of possible children), operation might well be sanctioned by the profession, or, if necessary, by law, when performed also for eugenic purposes.

(*b*) Separation of man and wife is also too severe a measure to be adopted by legislatures.

The simplest method which can be recommended at present is legislation which will compel the contracting parties to a marriage to furnish bonds that the children of the proposed union shall not become public charges.

This would mean a statute about as follows:

AN ACT FOR THE PREVENTION OF HEREDITARY BLINDNESS

SECTION 1.—If a visual defect exists in a man or woman who is about to marry, or in a blood relative within the third degree of either party, and if any taxpayer fears that the children of such a union may become more or less blind and therefore public charges, then such taxpayer, on guaranteeing the costs, may apply to the county court for an injunction against such marriage.

Thereupon, the judge shall appoint at least two persons to advise him concerning the probability of the further transmission of the eye defect. One of the experts thus called in consultation by the judge shall be a professor of sociology, biology or genetics in one of the universities of the state, or one of the staff of the Eugenics Record Office of the Carnegie Institution or any other person whom the judge may consider to be also well versed in the usual manifestations of heredity. The other expert shall be a legally qualified physician well versed in diseases of the eye.

SEC. 2.—Disobedience of the provisions of the above statute shall constitute a misdemeanor.

SEC. 3.—This act shall take effect on the — day of —— in the year ——.

But objections to any restrictive legislation occurred at once to members of the committee.

(*A*) Most of us are naturally suspicious of novelty. An Englishman, they say, on a wager, posted himself on London Bridge with a number of perfectly good sovereigns, offering them at nineteen shillings each, and he could sell them only with great difficulty.

(*B*) We all wish to avoid cumbering the statute books with useless laws. But no one actually knows whether a proposed law is useless until it has been tried. The mere discussion of a law to prevent hereditary blindness would unquestionably be of value as a lesson in eugenics, and its passage would be justified if it saved only one human being a year from blindness. This is better for a beginning at least than the certainty we have now of continued propagation, generation after generation, of the blind.

(*C*) Restrictive legislation is not in accord with the theory of free government. Injunction against marriage, as such, would probably be declared unconstitutional. But if the known or declared intent of one or more persons is such as to make it probable that their action would result in a quasi tort against any citizen, then in accord with established practice, such persons or person may be required to give bonds to protect such citizens against harm, namely, unjust taxation—the plaintiff as usual paying the costs.

On the same principle, one man is placed under bond to keep the peace or another may be placed under bond not to desert his family (Section 899, Code of Criminal Procedure, New York). This is practically universal. Moreover, the protection given to that one taxpayer affords equal protection to all others.

(*E*) The practical working of such a law seems at first complicated. But an example will show it is possible for a judge to obtain a basis for calculating a just bond in a given case. If the average duration of human life is forty years (as for instance in Massachusetts), and the average cost of supporting and educating an individual from birth to death

10. Howe, L.: A Family of Glaucoma, Arch. Ophth. **16**:72, 1887.
11. Lewis, F. P.: Tr. Sect. Ophth., A. M. A., 1918, p. 75.

was about seven dollars a week, then one person would cost about $14,600. That would be the maximum bond for the support of one blind child. But in the law proposed, the exact amount is discretionary with the judge. If the defect is frequent (dominant), then a poor and shiftless couple, or one wealthy and dissolute might well be held by a bond approaching the maximum; whereas, if the defect is not frequent (recessive), then a poor but sturdy and promising couple, or one well able to provide against calamity, would probably be required to give a bond for only a nominal amount. With such factors taken into account there would seem to be no unusual difficulty in administering the law.

Indeed, it is possible that "eugenic protection" might become a function of some organizations already existing. Or a special eugenic protective association might be formed. Paid agents would probably discover defective families, learn about intended weddings, and attend to legal details not customary now.

This principle might have a still wider application if such associations would deal not with blindness alone but include feeblemindedness, waywardness and phases of poverty and of crime. Thus, two great wrongs of unjust taxation and cruelty would be rectified. Eugenically, that plan seems advisable. Legally, the principle has been pronounced sound.

The foregoing objections to restrictive legislation, together with some others, occurred to the writers of this report early in its preparation. Therefore, in order to learn the views of others, a preliminary questionnaire was submitted to a considerable number of ophthalmologists and geneticists. The replies are still to be classified and carefully studied. But at this first opportunity, we wish to express our thanks not only to those who approve our proposition, but especially for suggestions, and even for opposition, sometimes very instructive. Several of the suggestions, although adverse, have been gladly adopted in our conclusions. Two important changes have been made in the form of the law as at first proposed.

In this report it is only possible to mention the more evident objections to legislations. Answers to other adverse reasons will be gladly furnished, if desired, in a subsequent report.

The opposition which any such law is sure to elicit reminds one of the history of the first efforts for the control of ophthalmia of infancy. Previous to forty years ago, that disease was common. It caused at least from 15 to 20 per cent. of all the blindness among the young. At that time, a short and simple law was proposed to compel midwives and others to report suspicious cases. At first, the proposal met with active and persistent opposition when not with apathy.[12]

But by this and several other efforts, the public was gradually educated. Now that law, in some form, is operative among more than half of the hundred million inhabitants of this country. Ophthalmia of infancy has become a rare disease. As we were negligent concerning that condition before legislation against it, so now with heredity.

At present, we give less attention to the breeding of human stock than to that of horses, cattle or hogs. What should be the holy bond of matrimony becomes too often the legalized gratification of passion, a matter of pride, or the hope of profit. The wedding then is rather a spectacle than a sacrament. Divorces are more common with us than in any civilized country, except Japan. If public education, with its natural sequence of reform in such evils, is to come at all, it must begin somewhere. Why should it not come with safe and mild legislation like this, for the prevention of hereditary blindness? This leads us to the following recommendations.

VII. RECOMMENDATIONS

First, ophthalmologists should record histories as completely as possible, especially when serious eye defects are revealed.

Second, all other physicians and surgeons should try to keep pace with the rapid progress made in genetics, applying the new facts to improving methods of diagnosis, and, when possible, of treatment also. Any unusual defects if not published should be reported to the eugenics record office of the Carnegie Institution, Cold Spring Harbor, Long Island, N. Y. There such records are carefully classified, and guarded for study whenever desired.

Third, local and state medical organizations should use their agents and field workers to obtain further data concerning hereditary defects in certain families.

Fourth, clergymen should be pleaded with until, with quickening conscience, they refuse absolutely to marry couples whose defects or whose well known heredity make probable the begetting of still another brood of unfortunates. The desecration of the sacrament of marriage can be left to those whose moral standards are low.

Fifth, educators of all kinds should awaken to the fact that marriage is the most important event in the life of an individual; and heredity the first factor of our being. For that reason, if for no other, the teaching of eugenics should begin in the lower schools with familiar examples in botany and zoology, and should progress gradually until in the high school, with lessons in cell development and otherwise, the defects of careful or careless breeding become evident. Examples could there be cited of a multitude of physical defects, among them, blindness or mental infirmities, such as feeblemindedness, forms of poverty and crime, as exemplified on the one hand by the Adams or Fields, and on the other hand by the Juke or Kallikak or other families. Education like this seems more sensible and should rank higher than an acquaintance with Greek roots or mythologies of doubtful morality.

Sixth, legislators, and especially lawyers among them, should have shown to them their magnificent opportunities for control by beneficient legislation. They could accomplish more at one stroke than could a whole army of physicians, clergymen, teachers or all other groups combined.

Every taxpayer should join in urging our legislators to pass this law—if no better one can be proposed now, and then amend this one later, as experience may prove advisable. In a word, let us not continue to wait and wait, but *do something*.

Finally, the committee asks for more time. No effort will be made, this year at least, to recommend to the House of Delegates that it shall give its endorsement to the proposed law. We desire to study the subject more thoroughly—especially any possible objections to legislation with the hope of improving what is now suggested. Meanwhile also the subcommittee may be enlarged. The present members have either signed their names as usual, or given authority for that by letter. But the liberty has been taken to add explanatory titles, for the sake of identification and with the hope that the example of the few who have thus far learned of the proposed legislation may be followed later by the approval of others. In a word, the committee trusts that with increasing knowledge of the subject, means of some kind may be found by which to lessen hereditary blindness.

LUCIEN HOWE, Chairman,
CLARENCE LOEB,
WILLIAM T. BELFIELD.

12. The first draft of the law was prepared in the office of the chairman of the committee.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, SECRETARY.

THEOBROMINE-SODIUM ACETATE (See New and Nonofficial Remedies, 1921, p. 363).

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SATURDAY, DECEMBER 24, 1921

THE BLOOD IN INFANTILE TETANY

About 1 per cent. of the weight of the protoplasm of the body is composed of inorganic elements. Of them Mathews [1] has expressively written: "They are not simply clinkers clogging the grates of the protoplasmic fires, but they are active in the production of the vital phenomena." In recent years, physiology has learned to regard the inorganic constituents of the body tissues not merely as structural units, such as one might assume the mineral components of the bone to be, but also as elements taking a more active part in relation to physiologic function. It has become apparent in numerous instances that any change in their relative proportions at once affects the activity of the cell; thus, by increase or by diminution in the proportion of sodium, calcium or potassium, skeletal muscle may be made to twitch rhythmically or to remain at rest; nerve impulses may be set up in motor nerves, or the irritability of the nerve raised or lowered. Hence has come the conception of a "physiologically balanced" solution representing the ideal circulating fluid of the organism—a fluid in which the relative proportions of the different ions is such that their antagonisms are neutralized and the proper balance for the maintenance of a normal irritability of muscle and nerve is secured.

The studies of Loeb and others have shown, for example, that calcium and magnesium are antagonists to sodium and potassium. Small amounts of calcium prevent the stimulating action of sodium in experiments on isolated muscles; hence Loeb once remarked that we are indebted to the calcium concentration of our blood for the fact that our muscles do not constantly twitch. There are disorders of man in which the musculature either twitches or shows a hyperexcitability to electric stimulation. There has been much speculation as to whether and how such phenomena might be related to an "unbalanced" condition of the body fluids which perfuse the organs.

Conjecture can now be replaced by knowledge, because the inorganic composition of the blood is no longer as much of a mystery as it used to be. The physiologic chemist has devised methods of microanalysis by which even small quantities of blood can be made to tell the story of their chemical composition. From data obtained in this way, Kramer, Tisdall and Howland [2] have confirmed earlier evidence from the Department of Pediatrics at the Johns Hopkins University indicating that the concentration of the sodium, potassium and magnesium in the serum of patients with tetany is essentially normal. On the other hand, the concentration of the calcium is regularly lowered. Obviously, the Baltimore pediatricians conclude, the important factor in increasing the irritability of the neuromuscular mechanism in infantile tetany is the decrease in the calcium concentration. The stimulating effect of the sodium and potassium salts is unopposed by the inhibitory effect of calcium. A procedure for the treatment of infantile tetany thus immediately suggests itself.

1. Mathews, A. P.: Physiological Chemistry, New York, William Wood & Co., 1920, p. 14.

2. Kramer, Benjamin; Tisdall, F. F., and Howland, John: Observations on Infantile Tetany, Am. J. Dis. Child. 22: 431 (Nov.) 1921.

THE HUMAN BODY AS A WORKING MECHANISM

During the last few years, clinicians have learned much about the so-called basal metabolism of man. By this is meant the amount of energy required by the human organism under conditions of minimal activity, that is, at complete repose and without food. It represents the lowest hourly expenditure of energy compatible wtih continuance of the normal physiologic functions. Today it is well known that pathologic states of the organism may decidedly modify the basal metabolism; they may raise or lower the "metabolic rate." The apparatus and technic for estimating this factor have been perfected so as to come easily within the range of clinical laboratory management.

Less precise information is available, on the other hand, regarding the additional expenditure of energy which the many diverse activities of daily life call for. Broadly speaking, it may be said that the changes in the energy requirement due to differences in activity range from one-half calory hourly for each pound to three or more calories for severe effort; for the average man these figures represent variations from 1,700 to 6,000 calories in twenty-four hours. The data have usually been secured in a statistical manner by observing the actual food consumption of persons engaged in occupations of varying severity, and translating the intake into terms of energy. Direct calorimetric observations have been comparatively rare because of the technical difficulty involved in making measurements on persons actually engaged in mechanical work.

A few classic instances are often quoted in illustration of the surprisingly large working capacity of the human body in selected instances. The wood chopper in the Maine forests and the college athlete furnish

illustrations. Recently Gullichsen and Soisolon-Soininen [1] of the Physiologic Institute at Helsingfors have had unusual opportunity to make accurate studies on fencers and wrestlers under conditions of the most strenuous muscular performance. The energy output of these workers, estimated on an hourly basis during the periods of actual exercise, was more than 800 calories.

It is not without interest to translate such muscular efforts into other terms. Lavonius [2] found that the maximum amount of work attainable by a trained wrestler was the equivalent of 30 kilogrammeters a second. In the case of the Finnish athletes just referred to, the performance was even greater. Such exertions cannot be continued for any considerable periods of time; nevertheless, they give some concrete idea of what the human machine is capable as a converter of energy.

THE SIGNIFICANCE OF A PERSISTENT THYMUS

The association of sudden death with enlargement of the thymus was noted by Bichat early in the eighteenth century; Paltauf and others of the Vienna school showed that the persistence of the thymus in these circumstances is only one of a combination of hereditary anatomic imperfections occurring in the same body, and Charles Norris pointed out the external manifestations by which the condition of status thymicolymphaticus can be detected clinically.[3] Since then the recognition of this condition, especially on the necropsy table, has become general, and its medicolegal importance is universally accepted. The chief characteristics of status lymphaticus are not limited to the general hyperplasia of the lymphoid tissues, with enlargement of the thymus in the young subject or its persistence in adults, but there are also more general changes, including hypoplasia of the vascular system, a delicate, clear, pale skin, noticeably rounded lines on a graceful body, scanty body and facial hairs, feminine distribution of the pubic hairs in male subjects, and other less significant changes. Symmers reports that 8 per cent. of the bodies examined at necropsy in Bellevue Hospital showed this condition to a recognizable degree.

Not only has the lymphatic constitution been found frequently in persons dying suddenly from trivial accidents, simple overexertion, or even mental shock, but attention has frequently been drawn to the presence of an enlarged or persistent thymus in persons who have committed suicide, and in criminals who have met death by violence. In the last groups of cases the persistent thymus has been interpreted as an evidence of constitutional defective development, of which the mental and emotional instability is merely a part.

During the war, however, the opportunity to examine large numbers of healthy, well developed men who have been suddenly killed has shown that the current view of the thymus as an organ which disappears soon after adolescence is not at all correct. Edgard Zunz [4] examined the thymus of a large number of Belgian soldiers who died soon after being wounded, and in forty-nine cases found in men between 19 and 34 years but three with completely atrophied thymus. In the others the gland weighed from 6.9 to 31.2 gm. (106½ to 481½ grains), averaging 15.7 gm. (242 grains). Yamanoi [5] also found a persistent thymus in a large proportion of bodies of persons dying quickly of acute influenza. Sternberg [6] calls attention to the prevalence of what seemed to be a lymphatic status in German soldiers killed during the war. He quotes Borst and Groll as finding in 2,000 necropsies a lymphoid hyperplasia in no less than 56 per cent., and in soldiers of from 19 to 20 years this condition was present in 86 per cent. The probable explanation of these findings is that the thymus does not undergo involution so rapidly as has been generally assumed, and that the abundant lymphoid tissue of youth persists well into adult life. So susceptible is the lymphatic tissue to toxic conditions or malnutrition that most persons who die otherwise than by a sudden death have suffered marked atrophy of the lymphoid elements, and our experience with necropsies on diseased bodies has given an erroneous impression of the age at which lymphoid involution takes place. In subjects meeting sudden death while in full health, the amount of lymphoid tissue found at necropsy is so much greater than that seen in the more familiar condition of death from disease that we are likely to consider that there is lymphoid hyperplasia, when actually the amount is normal. Presumably this accounts for at least some of the supposed frequency of status thymicus in suicides and in criminals meeting violent ends. It does not mean, however, that all our ideas concerning status lymphaticus are incorrect, for there is no doubt of the existence of the anatomic picture so carefully drawn by Paltauf and Norris. With this picture is associated a true hyperplasia of the thymus, for in Symmer's series of 118 cases of well developed status lymphaticus the glands usually weighed between 20 and 30 gm. (309 and 463 grains), as against the average weight of 15.7 gm. (242 grains) in Belgian soldiers. Nevertheless, these recent observations point out the necessity of discrimination in diagnosing status lymphaticus in persons meeting a sudden violent death, for the presence of a good sized thymus gland and well developed lymphatic tissues is not necessarily an abnormality in young adults.

1. Gullichsen, R., and Soisolon-Soininen, J. L.: Ueber die Kohlenstoffabgabe des Menschen beim Fechten und Ringen, Skandin. Arch. f. Physiol. **41**: 188 (July) 1921.
2. Lavonius: Skandin. Arch. f. Physiol. **17**: 196, 1905.
3. A review of this subject is given by Symmers, Douglas: Am. J. M. Sc. **156**: 40 (July) 1918.
4. Zunz, Edgard: Arch. internat. de physiol. **15**: 459, 1920.
5. Yamanoi: Schweiz. med. Wchnschr. **51**: 554, 1921.
6. Sternberg: Wien. klin. Wchnschr. **34**: 291, 1921.

Current Comment

THE INFLUENCE OF FAMINE ON DISEASE

The vast experiment on undernutrition furnished by the war taught much concerning other things than nutrition itself, especially the relation of nutrition to the incidence or manifestations of all and sundry disease processes. Much has been written concerning the decrease in obesity and diabetes among the population of the central powers as a result of enforced temperance as to food, while the tuberculosis curve during the famine years has been extensively discussed. During the period of short rations the alimentary canal also had new experiences, both as to quantity and character of food, the potato and turnip assuming a more conspicuous place in the day's work of digestion than had previously been the case. Apparently, on the whole the digestive tract met the new demands with success, for there seems to be no agreement in the German literature that there was any general increase in diseases of this part of the anatomy during the war. Some authors, as Boas and Albu, state specifically that there was no such increase; but many others report an increase in chronic dysentery, gallbladder disease and gastric ulcer. In view of the reputed relation of cancer of the stomach to the character of the diet, and especially the vegetarian's belief that this disease is the result of meat eating, it is interesting to report that a careful study by Janowitz [1] shows no evident alteration in either the number or the location of cancers of the digestive tract as observed in Berlin during the war, when compared with a similar group of population before the war.

INFANT MORTALITY IN THE UNITED STATES

Practical philanthropy applied in preventive medicine will not approach real success unless it is based on accurate facts and defensible premises. Human sympathy has often been accused of being misapplied. In the long run, the wisdom of procedures for human betterment must be measured by objective rather than purely subjective standards. This statement applies to the movements for the reduction of infant mortality, among other philanthropic enterprises. Raymond Pearl [2] remarked not long ago that one must have accurate birth statistics before infant mortality can be adequately discussed. These are at length available for a considerable area, in 1918 including 53 per cent. of the population of this country. On the basis of data secured for the U. S. birth registration area, Pearl has been able to ascertain for the first time with marked accuracy that infant mortality rates exhibit a relatively high degree of place variation in both rural and urban areas of the United States. There has been no significant decline in the mean rate of infant mortality in this registration area during the years 1916-1918, for which the dependable figures are now available. There is no significant difference in the mean infant mortality rates in large cities (of more than 25,000 population) as compared with smaller ones; but the rates are notably smaller in the rural than in the urban areas, in both the white and the negro elements of the population. The mean rates of infant mortality are something like twice as high for the colored population as for the white population in each of the demographic units considered (large cities, small cities, rural areas), and at all times. According to Pearl, further, cities of more than 25,000 population in the birth registration area exhibit distinctly less variation in respect to rate of infant mortality than do either the smaller cities or the rural counties. The colored population exhibits a much higher degree of variation, however, measured in respect of infant mortality, than does the white population. Before control or ameliorative measures can be applied, the true facts must be known so that allowances can be made for possible influences of poverty, race, climate and other factors. Now that great and real variations of an indisputable sort have been brought to light, the problems of effective control and reduction of infant mortality are opened for discussion on a more rational basis.

1. Janowitz, Frieda: Ueber das Verhalten der malignen Tumoren des Verdauungstraktus während des Krieges, Ztschr. f. Krebsforsch. **18**: 34, 1921.
2. Pearl, Raymond: Biometric Data on Infant Mortality in the U. S. Birth Registration Area, 1915-1918, Am. J. Hyg. **1**: 419 (July) 1921.

IS FREE SALICYLIC ACID LIBERATED FROM SALICYLATE IN THE CIRCULATION?

Salicylates have long enjoyed a widespread vogue in drug therapy and particularly in certain diseases which, like rheumatism, are supposed to be associated with bacterial invasions of the blood and tissues. Salicylic acid is a protoplasmic poison scarcely less destructive to bacteria than are many well known germicides. This fact has raised the question whether the alleged therapeutic virtues of the less toxic salicylates are attributable to liberation of the acid itself in the organism. There is little probability that under ordinary conditions salicylic acid would be present as such in the circulation. Many years ago, however, Binz [1] demonstrated that the acid can be set free from its salts by suitable concentrations of carbon dioxid. Although the tension of the latter in normal tissues does not suffice for the purpose, it has been suggested that the higher concentration of carbonic acid found in inflamed areas may suffice to liberate salicylic acid so that it can exert a local antimicrobic action. Furthermore, it has been suggested that, in bacteremias treated with salicylates, the absence of a right-sided valvular endocarditis is due to the antiseptic qualities of free salicylic acid liberated there by virtue of the greater carbon dioxid content of the venous blood. The occurrence of mitral endocarditis, according to this view, would be associated with the greater alkalinity of the arterial blood, which cannot liberate free salicylic acid, and consequently does not possess antiseptic qualities. The question at issue is open to experimental tests. Although free salicylic acid is demonstrably liberated from sodium salicylate at a very low degree of acidity, namely, at a hydrogen ion concentration corresponding to p_H 6.5, Hanzlik [2] has found that the buffer substances in the blood prevent this even at higher acidities. Therefore it is improbable that free salicylic acid could be demonstrated in the circulation; in fact, none could be

1. Binz: Arch. f. exper. Path. u. Pharmakol. **10**: 147, 1879.
2. Hanzlik, P. J.: The Salicylates, XIII, The Liberation of Free Salicylic Acid From Salicylate in the Circulation, J. Pharmacol. & Exper. Therap. **17**: 385 (June) 1921.

detected by Hanzlik in the case of animals subjected to fatal asphyxia resulting in bloods that were actually slightly acid. He concludes, further, that fluids of joints and similarly enclosed regions would need to be more highly acid and freer from protein and other constituents than is probably ever the case in order to contain free salicylic acid and explain the therapeutic relief from salicylate medication according to the antiseptic theory.

PROFESSOR LORENZ AGAIN

Nineteen years ago Professor Lorenz came from Vienna to Chicago to give orthopedic treatment to the child of a millionaire. From the time he left his own city until he boarded the steamer for Europe, his trip was given publicity of an amount and kind that savored more of the circus performer than of the surgeon. That visit undoubtedly left in its wake blasted hopes and bitter disappointment in the hearts of poor cripples who, believing the newspaper reports that Professor Lorenz had well-nigh supernatural powers as an orthopedic surgeon, were for one reason or another unable to get the "miracle man" to treat them. The experience of 1902, it seems, is to be repeated. Professor Lorenz this time, according to press dispatches, comes to give free treatment to indigent American cripples. This at least is the ostensible reason. Recent reports indicate that not all the treatments are free but that fees are being accepted for the "private examinations." On this point the papers quote Professor Lorenz as saying:

> Of course, when people come to see a physician or surgeon in a private office they expect to pay a fee for examination and treatment. The receipts for any single day were never as much as $3,000. The most was about $1,000.

To those with medical training, and therefore having knowledge of the facts, the publicity attending the present visit is nauseous. But that is its least indictment. The execrable taste of the whole matter might be forgiven if the public were to be the real beneficiaries. As a matter of fact, it is the public—the crippled public—that is suffering from this blatant advertising campaign. It is the refinement of cruelty for sensation-seeking newspapers to hold out to the crippled the false hope that Dr. Lorenz is a "miracle man" who will do for them what skilled orthopedic surgeons in this country have been unable to do. Medical men on both sides of the Atlantic know that the Austrian orthopedist has no phenomenal ability that places him in a class by himself. Professor Lorenz himself knows this—and admits it. The results accomplished on his previous trip were no better than the results of American orthopedic surgeons of that time. His most widely heralded "cure" was not a cure; it was a result as good as, but no better than, good orthopedic surgeons the world over constantly get. The accomplishments on the present trip will doubtless be those of any good orthopedic surgeon, with the usual proportion of good, bad and indifferent results. Perhaps one benefit will be the arousing of those crippled to seek competent medical attention. But behind and above it all will be the bitter resentment and despair of those poor unfortunates who, while hopelessly crippled and while getting from American surgeons the best that science has to offer, will be convinced that could they only reach the "miracle man" their cure would be assured. Such publicity as the present pilgrimage is bringing forth is deprecated by the medical profession not because it is in bad taste but because in its effects, it is cruel.

THE RESISTANCE OF HUMAN INTESTINAL PROTOZOAN CYSTS TO HEAT

Within the cells of various types of bacteria, spores are formed to enable them to resist unfavorable conditions that might prove disastrous to the ordinary vegetative form. Whether spore formation occurs as a regular stage in the life history of an organism, or is produced only under the stimulus of an unfavorable environment, is still debated by bacteriologists. In any event, however, bacterial spores are exceptionally resistant to the destructive action of heat, light and many chemical reagents that easily destroy the bacteria themselves. Many protozoa are similarly able under unfavorable conditions to surround themselves by a resistant cyst and to enter on a resting stage of indefinite length. This power plays an important part in the life history of many parasitic protozoa, especially those which have become so specialized that multiplication or continuous existence independent of their appropriate host has become impossible for them.[1] Protozoan infection is often spread through the device of encystment. Boeck [2] of the School of Hygiene and Public Health at the Johns Hopkins University has determined the thermal death point of the different cysts of the parasitic intestinal protozoa of man as follows: *Endameba histolytica*, 68 C.; *Endameba coli*, 76 C.; *Iodameba bütschlii*, 64 C.; *Endolimax nana*, 64 C.; *Giardia intestinalis*, 64 C.; and *Chilomastix mesnili*, 72 C. This remarkable resistance of all these protozoan cysts to high temperature gives a clearer insight into their ability to survive and transmit trouble for mankind. It is, as Boeck points out, quite analogous to that of the spores of bacteria; in both cases the thermal death point is much higher than that of their respective vegetative and nonspore bearing stage.

PROPOSED INCREASE IN THE UNITED STATES PUBLIC HEALTH SERVICE

A bill has been introduced in the Senate and House of Representatives to "reorganize and promote the efficiency of the United States Public Health Service." It is known as the Watson-Dyer bill. The bill provides for 550 officers of the reserve corps of the Public Health Service, including fifty dental surgeons and fifty scientists other than medical officers, who may be transferred to and commissioned in the Regular Corps of commissioned officers of the Public Health Service by the President, in the grades of assistant surgeon, passed assistant surgeon, surgeon, senior surgeon, and assistant surgeon-general. Officers in the last grade will be known as Medical Directors. No officer will be commissioned or promoted until after passing an examination before a board of regular commissioned officers of the Public Health Service. The bill further provides that no reserve officer shall be commissioned in

1. Marshall, C. E.: Microbiology, 1921, p. 132.
2. Boeck, W. C.: The Thermal Death Point of the Human Intestinal Protozoan Cysts, Am. J. Hyg. 1: 365 (July) 1921.

the regular corps of the Public Health Service who has not had three years' satisfactory service in the army, navy or Public Health Service, a part of which service must have been between April 6, 1917, and Nov. 11, 1918. There are only 200 regular commissioned officers in the Public Health Service at present. They are largely engaged in administration, scientific research, industrial and child hygiene, neuropsychiatry, domestic and foreign quarantine, immigration, prevention of venereal diseases, public health education, and other matters pertaining to public health. There are about 1,000 commissioned officers of the reserve of the Public Health Service on active duty, caring for ex-service men. These officers are indispensable, yet they have no fixed tenure of appointment; they can be dismissed from active service by a stroke of the pen, regardless of the fact that the service and the country need them. The Watson-Dyer bill will transfer at least half of them to the regular service without any additional expense. It is hoped that this bill may speedily become a law so that the Public Health Service may have the increased permanent personnel which it needs to carry on its important work.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Gorgas Sanitation School.—It has been announced that the establishment of a school of sanitation at Tuscaloosa, in memory of the late Major General William C. Gorgas, will be undertaken by a group of southern physicians. Dr. Seale Harris, Birmingham, is chairman of a committee for formulating the plans. The site will be adjacent to the University of Alabama.

County Health Conference.—The annual conference of county health officers was held at Birmingham, December 12-17, in conjunction with the graduate school of medicine of the University of Alabama. Dr. William H. Park of the New York City Laboratories was the guest of honor, and read a paper on the use of antitoxin for the prevention of diphtheria. Dr. Park also conducted a clinic during which he explained the means of administering the treatment. Col. Frederick F. Russell, Washington, D. C., representative of the International Health Board, also delivered an address.

CALIFORNIA

Medical Scholarship for Women.—It has been announced that a memorial scholarship in medicine will be established at the University of California in memory of Dr. Sarah Shuey of the class of 1876, who was the first woman to graduate in medicine from the university.

Addition to County Hospital.—A building permit has been issued for a large addition to the County Hospital at Los Angeles, and the building will soon be erected. The permit calls for a building to contain 120 rooms, to be built at 1200 Mission Road, at an approximate cost of $300,000.

Demonstration Clinic.—Dr. Udo J. Wile, professor of dermatology at the University of Michigan, Ann Arbor, held a special demonstration clinic at the public health center, Oakland, December 12. Dr. Wile gave a clinic to the physicians of the bay region at the University of California, December 16, and while a guest of the Academy of Medicine, San Francisco, December 17, Dr. Wile conducted a similar clinic at Stanford Hospital.

Children's Theater at Clinic.—The women's auxiliary to the children's clinic of the University of California is operating a marionette theater in connection with the clinic. It is designed to entertain the children while they are waiting for a physician and at the same time teach them a health lesson. Dr. L. Emmett Holt, Sr., emeritus professor of pediatrics, Columbia University College of Physicians and Surgeons, New York City, was the guest of honor at the opening of the theater.

Lane Lectures.—The Lane series of medical lectures announced in THE JOURNAL, November 12, which is generally reserved for members of the medical profession and students, was open to the public for three lectures, December 5, 8 and 9. Dr. L. Emmett Holt, Columbia University College of Physicians and Surgeons, New York City, was the speaker. His subjects were, "Growth and Nutrition," "Vitamin" and a general discussion of practical problems of improving the nutrition of children, including the prevention and treatment of malnutrition.

Palo Alto U. S. Hospital.—There is now available $1,400,000 for a soldiers' hospital at Palo Alto where ex-service men will be treated for mental and nervous ailments. The expenditure has been approved by Secretary of the Treasury A. W. Mellon. The new veterans' home will be built on a site of the present structure, and the capacity will be 550 beds. The tuberculosis group of permanent buildings, which it is expected will be built later, when a special appropriation for the purpose will be made, will have a capacity of 450 beds. This will make a total capacity of 1,000.

DISTRICT OF COLUMBIA

Bill to Control Optometry Practice.—Regulation of the practice of optometry in the District of Columbia is defined in a bill presented to the Senate this week by Senator Ball. Licenses are required of all opticians who must pass an examination. The proposed regulation is similar to the law now in existence controlling the practice of medicine.

Plea for Organized Medicine.—At a recent luncheon of the University Club, the membership of which includes about 100 physicians and surgeons of Washington, Dr. Hubert Work, President of the American Medical Association, made a strong plea for organized medicine. Dr. Work said, in part, that organization is at the foundation of success along practically all lines, and that men and women outside the medical profession engaged in other forms of the healing art, both honorable and otherwise, are organized and are drawing the people by their advertising methods.

HAWAII

Medical Society of Hawaii.—The annual meeting of the society was held, November 21, at Honolulu. The following officers were elected for the ensuing year: president, Dr. Grover A. Batten; vice president, Dr. Joseph E. Strode; secretary, Dr. Forrest J. Pinkerton; treasurer, Dr. Wah Kai Chang, all of Honolulu.

ILLINOIS

Public Health Institute in Chicago.—The state department of public health has completed arrangements for conducting a public health institute in Chicago, March 13-18, 1922. Complete programs for the institute have already been prepared and may be had upon request from the state department of public health at Springfield.

School of Instruction for Health Officers.—The state department of public health has just concluded a seven day session of a school of instruction for district health superintendents. The institute was held in Springfield and Chicago, three days being devoted to theoretical instruction and four to the observation of practical demonstrations.

Diphtheria Epidemics Cause Local Alarm.—During the past two or three months the prevalence of diphtheria in Illinois has been, and continues to be, unusually widespread. At many local points rather severe outbreaks have stimulated public alarm sufficiently to cause the closing of schools or the contemplation of such action in efforts to control the epidemic.

Typhoid Fever Carrier Identified.—Of more than usual interest are the results of a recent investigation by one of the field physicians of the state department of public health into a mild outbreak of typhoid fever at Mount Carroll in Carroll County. The chain of epidemiologic evidence pointed to a certain milk producer as the source of four or five cases. A laboratory examination showed that the dairyman is an active typhoid carrier, although forty-three years have elapsed since his attack of the disease.

Smallpox Incidence Increases.—The usual seasonal increase in smallpox has made its appearance in the state. Of more than usual interest, however, is the fact that many of the cases are reported to be of the virulent type. Drury Township in Rock Island County reported twenty-seven cases to the state department of public health within a week, and twelve of these were reported on a single day. From Tonica, in La Salle County, it is reported that fifteen cases of smallpox developed as a result of contact with a single patient who attended a local dance. The same patient is reported to have spread the disease throughout Leonore Township. From Dixon, in Lee County, ten cases, three of which are very malignant, were reported.

INDIANA

Conference on Mental Health.—A state conference on mental health was held at Indianapolis, December 15, under the auspices of the Indiana Society for Mental Hygiene.

Hospital News.—The Peru chamber of commerce has set aside $2,000 as the beginning of a fund to be used in the erection of a new building for the Miami County Hospital, and has given the hospital association $1,500 for immediate purposes of equipment.——Work has been started on the new south wing of St. Anthony's Hospital, Terre Haute. Building permits estimated the cost of the addition at $75,000.——The hospital board of Vermilion County voted to make a conditional award for the contract for building the proposed county hospital at Clinton. Since there is a shortage to be made up of the building funds, the contract was awarded on condition that approximately $26,000 be raised within a month by coal operators interested in the Clinton coal field or by other citizens. At least two coal companies have announced their intention of contributing to the fund. The citizens have promised to provide $20,000 for the equipment of the institution.

KANSAS

Personal.—Dr. Frank G. Pedley, Montreal, Canada, has been appointed epidemiologist for the Kansas State Board of Health vice Dr. Thomas D. Tuttle, resigned.——Dr. Andrew J. Warren, Topeka, of the International Health Board, has been appointed chief of the division of communicable diseases and sanitary director of county health work, having been temporarily lent the International Health Board for that purpose.——Dr. Helen A. Moore, Wichita, assumed her duties as chief of the division of child hygiene, December 1.

Public Health Activities in Kansas.—The annual meeting of the Kansas Public Health Association was held in collaboration with the Kansas conference of social work in Topeka, December 6, 7 and 8.——Steps are being taken for organizing a section on laboratories, a section on public health nursing, and probably a section on mental hygiene. The next annual meeting will be held in October, 1922.——The Kansas State Board of Health has put on an extensive program during the last three months encouraging the immunization of schoolchildren to diphtheria by toxin-antitoxin. ——The state board of health, in connection with the International Health Board, has offered assistance to six counties in the state for the purpose of putting on a full-time health demonstration, three counties having thus far been secured, and already there is widespread approval among the people of those counties for the full-time health organization work. These three counties, together with four others, previously operating, make a total of seven full-time health organizations in operation in the state.

MARYLAND

Opening of Public Health Unit.—The opening of the Washington County Public Health Unit took place, December 1, at Hagerstown. The building occupied by the association was thrown open to the public and the work of the clinical rooms explained to the visitors. The new laboratory was also visited and its workings illustrated.

Personal.—Dr. Howard A. Kelly has presented to the Babies' and Childrens' Clinic of the University Hospital a hand-carved bambino, a representation in art of the Infant Christ, which he brought from Florence, Italy. The presentation was made at a tea given in honor of the second anniversary of the clinic.——Award of the Distinguished Service Medal has been made to Dr. Elliott B. Edie, Connellsville, Pa., at Fort Howard. Dr. Edie was chief surgeon of the Eightieth Division when it was in action in the Meuse-Argonne offensive in France, and the award is in recognition of his exceptional work in evacuating the wounded of his division from the front under trying conditions and under fire. He ranked as a lieutenant-colonel during the war.

School Health Work.—Health work in the schools, which has been transferred to the Baltimore City Health Department from the department of education, will follow the Strayer survey plan as closely as means at the disposal of Health Commissioner C. Hampson Jones and the general situation will permit. Dr. Jones will add to his staff of physicians for school work two or three women, who will be assigned to such teaching duty as may be found desirable or necessary. Dr. Humphrey Warren Buckler will have charge of all school medical work for the health department under the new plan. At present there are thirty-seven physicians and sixty-three nurses working under the supervision of Dr. Buckler in the schools. In transferring this work to the health department, it was decided to allow Dr. Jones twenty-four additional nurses.

MASSACHUSETTS

Improvements in Hospital.—Long Island Hospital, Boston Harbor, Boston, has just completed the installation of a sprinkler system at a cost of $105,000.

Bureau to Aid Tuberculous Patients.—The executive committee of the Boston Tuberculosis Association has announced plans for the creation of a bureau for the purpose of providing work for persons discharged from the sanatorium as recovered from tuberculosis, but whose condition makes it imperative that they obtain suitable work. The association plans to seek out employers who are willing to give work to men and women on the understanding that such applicants will not be in a physical condition to jeopardize the health of their fellow workers.

Harvard Medical Unit.—A medical unit of the Reserve Officers' Training Corps is to be established at the Medical School of Harvard University, Boston. The course will cover four years. Instruction will also be given in a summer camp at the end of the first year, at which attendance will be voluntary, and another camp at the end of the third year, at which attendance will be requested for those who join the R. O. T. C. The camps will probably be held in connection with the Medical Field Service School, Carlisle, Pa., and will last a month. After four years' instruction and graduation as doctor of medicine, students will be eligible for appointment with the grade of first lieutenant. About twenty medical R. O. T. C. units similar to that at Harvard University already are established at other medical schools.

MICHIGAN

Mary Free Bed Guild.—Work on muscle reeducation, in connection with an orthopedic clinic at Blodgett Memorial Hospital, Grand Rapids, has been started by the Mary Free Bed Guild.

NEW HAMPSHIRE

Summary of New Hampshire Tuberculosis Clinics.—Under the management of the New Hampshire Tuberculosis Association, twenty-eight permanent clinic centers have been organized in the last sixteen months to which patients may go for examination and diagnosis. Three hundred and thirty clinics have been held, and a total of 6,730 patients have been examined, 161 of whom were sent to sanatoriums. Through exhibits and literature the work of the New Hampshire Tuberculosis Association has been introduced into 160 towns and cities.

NEW JERSEY

Personal.—Dr. Frederick H. Albee, Colonia, president of the state commission on rehabilitation, gave a demonstration of his work at the Cuban Medical Congress, held, December 12-17, at Havana.

Hospital News.—A new memorial hospital will be erected at a cost of from $50,000 to $100,000 at Ventnor.——The Memorial Hospital at Spring Lake will receive $5,000 from the estate of Mrs. Bertha Achelis.

NEW YORK

New State Health Department Secretary.—Mr. Curtis E. Lakeman has been appointed secretary of the New York State Department of Health, to succeed Dr. John A. Smith, resigned. Mr. Lakeman was formerly secretary of the New

York State Water Supply Commission, and later served as secretary to Dr. Ernst J. Lederle during the latter's second term as commissioner of the New York City Department of Health.

New York State Society of Industrial Medicine Elects.—This organization, which held its first annual meeting in Syracuse, December 7, elected the following officers for the ensuing year: president, Dr. T. G. Smith, Schenectady; first vice president, Dr. C. H. Weston, New York City; second vice president, Dr. Ralph W. Chaffee, Syracuse; secretary, Dr. Myer S. Bloom, Binghamton; treasurer, Dr. S. M. Slater, Rochester.

Politics in Appointment of Medical Officers.—The Albany County Medical Society, at its meeting, December 7, passed resolutions requesting that politics be disregarded in the selection of medical officers for the city and county. Copies of these resolutions were sent to Mayor-Elect Hackett. The following officers were elected for the ensuing year: president, Dr. Thomas W. Jenkins (reelected); vice president, Dr. Nelson K. Fromm; secretary, Dr. Emmanuel M. Freund; treasurer, Dr. John E. Heslin.

New York City

Bronx Hospital Buys Site.—As a site for a two-story addition, the Bronx Hospital has purchased a plot on the west side of Fulton Avenue, adjoining the present hospital buildings.

The Association of Cardiac Clinics.—This organization held a meeting at the New York Academy of Medicine, December 13. The paper of the evening was read by Dr. William S. Thayer of Baltimore on "The Minimum Symptoms and Signs Necessary to Make a Diagnosis of Organic Heart Disease."

Surgical Fellowship Established.—A surgical fellowship amounting to $600 has been established at the Lebanon Hospital Association at Westchester, Cauldwell and Trinity avenues, New York City. The fellowship was provided by Dr. Abraham J. Rongy and is awarded annually to the one of three graduate house surgeons who, in the opinion of the medical board, has had the best record during the entire term as a member of the house staff.

Association for Research in Nervous and Mental Diseases.—The second annual meeting of the association will be held, December 28-29, at the Hotel Commodore, New York City. The program consists of an investigation of multiple sclerosis, being the reports of research in etiology, pathogenesis, pathology, symptomatology and distribution of the disease. A supplementary report on last year's investigation of epidemic encephalitis will be made at the meeting.

American-Jewish Physicians Incorporate.—The American-Jewish Physicians' Committee has been granted the privilege of incorporating as a membership corporation by Supreme Court Justice William P. Burr. The organization aims to collect and expend funds for the establishment of a Jewish university in Palestine and for the upkeep of a medical unit of this university. Among the incorporators are Drs. Emil Altman, Joseph Bieber, Sigismund S. Goldwater, Israel Strauss and Israel S. Wechsler.

Chiropractic Causes Fatality.—David Lebish, a boy, aged 14, died shortly after admission to St. Mark's Hospital, December 9. Investigation into the cause of death revealed the fact that he had been treated for two days before his admission to the hospital by a chiropractor. Necropsy, performed by Dr. Charles R. Norris, chief medical examiner, verified the hospital diagnosis that death was due to a ruptured appendix, probably due to the manipulations of the chiropractor, Louis Glickman. Mr. George W. Whiteside, counsel for the Medical Society of the County of New York, and Dr. George Honan, assistant medical examiner, state that they have met many similar cases, several of which are under prosecution, but most of which have never been made public. Mr. Whiteside states that a chiropractor is under indictment for murder in the Borough of Richmond, that similar charges have been made against another in Queens, and there are two or three cases in New York County; the evidence in one has been submitted to the district attorney. Dr. Norris has also been investigating the case of Charles C. Rudolf, who died of blood poisoning and had been treated by three chiropractors. One of these admitted that he did not take temperatures or diagnose cases, but was merely interested in trying to locate any possible interference with the nerve supply that makes its exit from the spinal cord; another said the patient was "too far gone" when he first saw him to respond to chiropractor aid, while a third refused to answer questions. Dr. Norris has requested that "in all cases resulting in death where it appears in the history of the case that, shortly before admission to the hospital and while the patient was suffering from the disease causing death, such patient had been under treatment by an unlicensed practitioner, you will forthwith notify the medical examiner of the city, in order that prompt and proper investigation may be made."

NORTH CAROLINA

Unveiling of Tablet.—In appreciation of the pioneer work of Dr. James E. Brooks, in his fight against tuberculosis in North Carolina, the District Nurse and Relief Committee of Greensboro presented a memorial tablet to the North Carolina Sanatorium for the Treatment of Tuberculosis, Sanatorium. The unveiling ceremony was held last month.

OHIO

Health Code Held Constitutional.—The supreme court has ruled that the Hughes-Griswold act, in force Jan. 1, 1920, providing for an effective system of health administration and health officers throughout the state, is constitutional. This law has been the target of bitter opposition. The present decision was brought about by a suit to compel the county auditor of Cuyahoga County to turn back to the municipalities of the village of Cuyahoga Heights and the village of West Park money raised for health administration under the Hughes-Griswold act.

Health Week.—In connection with announcements of a health week program, December 6-9, it is stated that for the first time in the history of Ohio state health work every one of the eighty-eight counties of the state has its own district health commissioner. To aid in improving the health work in the state, Director Snively has prepared a correspondence study course for health commissioners, which will be put into operation the first of the year. Ohio is said to be the first state to institute such a training course for health commissioners, New York being the only other state to have anything similar. The course will be known as a "correspondence study course in public health."

PENNSYLVANIA

Resolution of County Medical Society.—At a recent meeting in Uniontown, the Fayette County Medical Society unanimously adopted a resolution disapproving the use of beer and wine for medicinal purposes.

Personal.—Dr. Thomas D. Aiken, Berwyn, was recently elected physician-in-chief of the medical service in the Chester County Hospital, at West Chester.——Dr. John A. Diehl, Marion, has resigned as president of the board of directors of the Chambersburg Hospital. T. B. Kennedy, Chambersburg, was elected president to serve the unexpired term.

Shields to Designate Physicians' Automobiles.—Lycoming County Medical Society has received a number of metal shields to be used on the front of members' automobiles. The name of the Lycoming County Medical Society appears on the shield and also the emblem of the American Medical Association—a caduceus. Physicians when attending patients are not subject to all the traffic rules of the city, and this shield is designed for the information of the officer, and to avoid the need for explanations and subsequent delay.

Philadelphia

Police Physicians Organize.—Police and fire surgeons of this and other eastern cities of 100,000 population or more formed an organization at a meeting in the Racquet Club, December 14.

Personal.—Dr. John A. Ferrell of the International Health Board, Rockefeller Foundation, delivered the lecture on hygiene at the Laboratory of Hygiene, University of Pennsylvania, December 17.—— Dr. Walter Roberts has been elected a member of the board of managers of Swarthmore College to fill the vacancy caused by the death of Isaac H. Clothier.

Hospital to Be Renamed.—As part of the program for the development of Garretson Hospital, the name of the institution has been changed to the Great-Heart Hospital. The hospital is indirectly a department of Temple University, and Russell H. Conwell, founder and president of Temple University, announces extensions including a training school for nurses' assistants at the hospital and an increase in the number of teaching beds in the hospital itself.

Six-Hour Quarantine for Smallpox.—Two hundred and fifty-three persons in the district from Sixteenth to Seventeenth streets, from Pine to Spruce streets, were vaccinated and 5,000 were placed under quarantine for six hours, December 13, following the discovery of a case of smallpox. The quarantine was started at 3 o'clock Tuesday morning, and 300 patrolmen were detailed to the neighborhood, which was roped off. The smallpox patient was taken to the Philadelphia Hospital for Contagious Diseases.

Children's Hospital Opens Disease Prevention Annex.—A new building, devoted exclusively to the prevention of disease, was opened by the Children's Hospital of Philadelphia, December 15. The department for the prevention of disease includes a health clinic, diphtheria clinic, preschool nutrition clinic, mothers' conference, school nutrition class, mothercraft, boys' health club, dental clinic and everything that can be taught a mother to help her in seeing that her children are healthy. The Associated Medical Clinic, which has been operated by the children's bureau, has been transferred to the department for the prevention of disease in charge of Dr. J. Prentice Murphy.

Symposium on Narcotics.—The stated meeting of the Philadelphia County Medical Society, December 14, was devoted to the discussion of alcohol in the form of a symposium arranged by the Committee on Foods, Beverages and Drugs and the Committee on Narcotics. Mr. Lloyd R. Craighill of Nanchang, China, delivered an address, his subject being "The Narcotic Situation in China; The Part the U. S. Army Is Playing in the Opium Traffic." Dr. George B. Wallace, professor of pharmacology, Department of Pharmacology, Bellevue Hospital Medical College, New York University, delivered an address, the subject of which was "Some Considerations of the Pharmacology and the Therapeutic Value of Alcohol."

Four Counties in New Health Association.—Members of boards of health in the boroughs and townships of Delaware, Chester, Montgomery and Bucks counties were organized by the state department of health as the District Board of Health Association No. 2. Approximately 200 members of local health boards in those counties elected Charles Stout, president of the Cheltenham township board of health, president of the new association. The association was formed at the call of Dr. Edward Martin, commissioner of health, for the purpose of bringing together the local health authorities into a compact organization which will work in cooperation with the state department of health.

TENNESSEE

Personal.—It has been announced that Dr. Hilliard Wood, who for thirty years has been teaching ophthalmology and otolaryngology in Nashville, has resigned from the faculty of the Vanderbilt University. Drs. Marvin M. Cullom and William G. Kennon will take up his work.

VIRGINIA

Annual Meeting of Medical Association.—At the twenty-sixth annual meeting of the Seaboard Medical Association, held recently at Norfolk, under the presidency of Dr. Edward C. S. Taliaferro, Hugh S. Cumming, Surgeon General, United States Public Health Service, spoke on "Pellagra as It Affects the Southern States."

WISCONSIN

Limitation of Health Board Power.—The city attorney of Milwaukee has passed adversely upon the question of department of health examination of children in the public schools. The question arose from the refusal of some parents to permit their children to be examined by visiting nurses or officials of the health department. It was held that there is no provision compelling the child to submit to such an examintion, but there is express authority for excluding that child from the school until the health department is satisfied that such child is free from contagious diseases, in cases in which an epidemic exists in the locality of the school.

CANADA

Public Health News.—The new public health court, Toronto, held its first sitting, December 15, with Magistrate Cohen in charge.

Standard to Be Raised at McGill University.—The standard required of students desirous of entering the Faculty of Medicine at McGill University will be raised next season, as announced recently. One year in arts, senior matriculation or its equivalent, will hereafter be imperative for all students.

Ontario Medical Association.—An advisory board consisting of three members has been appointed by the Ontario Medical Association to confer with the board of license commissioners and to assist in handling all charges against members of the medical profession of breach of the Ontario Temperance Act. The board members are, Drs. George S. Young, Toronto; Thomas C. Routley, Toronto, and Frank J. Farley, Trenton, Ont.

Personal.—At a recent meeting of the Academy of Medicine, Toronto, graduates of Trinity Medical College presented Dr. James A. Temple, Toronto, with a portrait of himself. Dr. Temple is the last and surviving dean of the college, and began his practice in Toronto in 1869, continuing until very recently.——Dr. Edgar N. Coutts, Agincourt, Ont., for a number of years the leading physician of Scarboro, has been recently appointed superintendent of the Freeport sanatorium, Preston, Ont. During the war, Dr. Coutts served with the Royal Army Medical Corps in Egypt.

GENERAL

Personal.—Dr. Hugh Wallace Bell, Crafton, Pa., formerly of Midway, Pa., who was decorated by the Greek government for services rendered its soldiers at Smyrna, has returned from Turkey, where he has spent two and a half years with the American Red Cross. Dr. Bell was director of the American Hospital at Smyrna and later at Narash.

Alaska Hospital to Be Retained by Government.—A bill introduced by Representative Sutherland provides for the retention of the government detention hospital building at Nome, Alaska. A law passed by Congress in 1916 instructed the Secretary of the Interior to sell the property. The measure stipulates that it be used for the U. S. Bureau of Education.

Fund for Medical Investigation.—The directors of the Fenger Memorial Fund have set aside $500 for medical investigation. The work should have a clinical bearing and if possible it should be carried out in an institution that will furnish facilities and ordinary supplies free of cost. Applications with full particulars should be sent to Dr. Ludvig Hektoen, 637 South Wood Street, Chicago, before Jan. 15, 1922.

New Officers of the Missouri Valley Medical Society.—At the joint meeting of the medical associations of the Southwest and the Missouri Valley, held recently at Kansas City, the following officers were elected for the Missouri Valley Medical Society: president, Dr. Paul E. Gardner, New Hampton, Iowa; vice presidents, Drs. Henry J. Lehnhoff, Lincoln, Neb., and Austin McMichael, Rockport, Mo.; treasurer, Dr. Oliver C. Gebhart, St. Joseph, Mo., and secretary, Dr. Charles Wood Fassett, Kansas City, Mo., reelected. The next meeting will be held at St. Joseph, Mo., in September, 1922.

Legislation Providing Medical Service for Coast Survey.—Provision for medical, surgical and hospital service for officers and seamen of the Coast and Geodetic Survey is the subject of a bill introduced in Congress by Representative Winslow. The measure directs the U. S. Public Health Service to take care of the sick and injured of the Geodetic Survey, and also provides that, whenever practicable, the detail of a medical officer to each of the vessels of the survey be made. The same service shall be furnished by the U. S. Public Health Service as is rendered by the medical corps of the Navy to its officers and men.

Nations Unite to Fight Epidemic Diseases.—The International Sanitary Congress, representing more than forty nations, has adopted the suggestion of the U. S. Public Health Service that plague, yellow fever and cholera be included among the so-called international notifiable diseases. It was decided that smallpox and influenza epidemics should also be a matter of diplomatic notification whenever they occur in the various countries. This suggestion was adopted at the recent International Sanitary Congress, which has just adjourned in Paris. Another meeting will be held in Paris next June, when diplomatic representatives of virtually all the nations of the world will meet to approve the work of the sanitary officers. The United States was represented at the recent meeting by Assist. Surg.-Gen. Rupert Blue, U. S. Public Health Service, Washington, D. C.

LATIN AMERICA

Twenty-fifth Anniversary of Havana Exchange. — The *Revista de Medicina y Cirugía* of Havana recently celebrated the silver anniversary of its foundation with a banquet. It was at the same time a testimonial to its founder, Dr. José Presno y Bastiony who had just before returned from a trip to Europe, in time to preside at the Fifth Cuban Medical Congress.

Memorial to Carrión.—The local medical society of Lima, Peru, and the organized medical students held a joint meeting, October 5, to commemorate the thirty-sixth anniversary of the death of Daniel A. Carrión who deliberately inoculated himself with the virus of a febrile disease in order to settle the question of its etiology and identity with Peruvian verruga.

Personal.—Dr. P. B. Bonelli of Guayama, Porto Rico, has returned to his country after spending several months in New York in postgraduate work.——Dr. Carlos Coello of Ecuador has returned to his country after attending the American Public Health Association meeting in New York. ——Dr. Raúl Bermés of Cartagena, Colombia, has returned from New York to his country where he intends to open a modern and well equipped sanatorium.

FOREIGN

New Chair at Paris.—A chair of clinical propedeutics has recently been founded in the Paris medical school and conferred on Dr. E. Sergent without his having passed through the agrégé stage.

Swedish Journal and Money Exchange Difficulties.—The *Acta Oto-Laryngologica* announces to subscribers in lands with currency much depreciated at present that a certain number will be accepted as subscribers on signing an agreement to pay the subscription before 1930, with 4 per cent. interest, and in Swedish money.

Strike of Medical Officers.—The *Revista Española de Medicina y Cirúgia* states that the health officers in Portugal have followed the initiative of the Asociação de Medicos Provinciales and have announced that they will not fulfil their regular duties until some steps are taken toward considering the reorganization of the sanitary service, a bill to that effect having long been pending in the legislature.

Insurance for Laborers.—An appropriation of 10,000 yen ($4,900) was obtained by the department of agriculture and commerce, Japan, for the investigation of facts on which to base an organization for insuring workingmen against accidents, disease and death. Statistics of accidents and deaths have already been completed. As there is no means of investigating the unemployed, the present contemplation is to confine investigations to health and injury insurance.

Foreign Members Elected by Swedish Medical Association During 1921.—Besides the honorary member, Prof. Bordet, the recipient of the Nobel prize in medicine last year, fourteen foreign members were elected by the association during the current year: Rollier of Leysin; the Italian professors Majocchi and Ducrey; the Brazilian, Werneck Machado, Terra and Rabello; the German, Reichardt, Penzoldt, Heffter and Pick; the Austrian, H. H. Meyer; the Christiania professors Holst and Poulsson, and Prof. R. Magnus of the Utrecht University.

Historical Tablets Unveiled at Naples.—On the occasion of the Italian medical and surgical congresses which convened the same week in October at Naples, two tablets were dedicated in the vestibule of the medical clinic commemorating the names of the internists who have taught there since the days of Cotugno to the present. The list includes Cirillo who died on the gallows for his devotion to ideals; Cotugno was persecuted, and Lanza and Tommasi were exiled. A historical exhibit of articles relating to the history of medical education at Naples was organized for the week of the congresses, and an illustrated parchment was presented to Maragliano who is a graduate of the Naples medical school. The *Riforma Medica* is published at Naples, and it has issued several special numbers in honor of the meetings.

Memorials to Gerhardt and Wurtz.—The two famous chemists to whom the introduction of the atomic theory is mainly credited, Gerhardt and Wurtz, were born or studied at Strasbourg, and on the occasion of the recent "congress week" at Strasbourg, a Gerhardt Foundation, to provide stipends for research in chemistry, was formally inaugurated and a Gerhardt tablet on the wall of the chemistry institute was unveiled. The memorial to Wurtz, who was appointed professor of chemistry at Paris in 1853, is a statue in a public square. Gerhardt was professor of chemistry at Montpellier where he published the first work on chemistry written in atomic notation. He resigned this post and for six years had no official position, but in 1855 he was given the chair of chemistry at Strasbourg where he died the following year, at the age of 40. The sons of both the chemists took part in the ceremonies.

Deaths in Other Countries

Dr. **José Aleman,** a prominent physician of Havana, died in New York after a long illness.——Dr. **E. Van Coillie** of Brussels, long a prisoner of war in Germany.——Dr. **P. De Ridder,** also of Brussels, died of pernicious fever on a trip to the Congo to study eye diseases.——Dr. **Koeppel** of Berlin. ——Dr. **Adolph Sell,** a Danish physician who succeeded in creating a colony for epileptics and getting the communities to pay the expenses for local epileptics. In the course of twenty years his colony, "Philadelphia," became a home for 450 epileptics and 100 insane women, all without any aid from the state. He early introduced occupation therapy and published a number of works, in one arraigning the medical profession as lacking in idealism.——Dr. **F. M. Levy,** formerly professor of gynecology at the University of Copenhagen, aged 74.——Dr. **Simon Adler,** surgical director of the Pankow hospital.——Dr. **J. Trüper,** Jena, publisher of the *Zeitschrift für Kinderforschung,* who is said to have done much to promote the medical-pedagogic care of psychopathic children.

Government Services

Public Health Service to Open New Hospitals

The U. S. Public Health Service is planning to open six new hospitals during the year 1922, all of which will be used for disabled war veterans. Included in the list are three tuberculosis hospitals, one at Dawson Springs, Ky., which cost the government over $2,000,000, another at Excelsior Springs, Mo., and a third at Rutland, Mass. The total capacity of these hospitals is 920 beds. A general hospital will also be opened at Fort Walla Walla, Wash., near the junction of the coast wheat and fruit belts, with a total of 1,240 beds. The new neuropsychiatric hospital in the Bronx, New York City, with 1,000 beds will also be ready for service during the next year. Because of the change in the law the institutions will probably be placed under the jurisdiction of the U. S. Veterans' Bureau, although up to the present time the U. S. Public Health Service is still in control of most of the hospitals where ex-service men are being treated.

Board to Pass on Army Contracts

Secretary Weeks of the War Department has appointed a board of contracts and adjustments for the army which will meet in Washington to study contracts and make adjustments of contracts made by the army. The board is made up of a representative from every branch of the service. Col. Edwin P. Wolfe, Medical Corps, U. S. Army, is among the members representing the medical department of the army.

Public Health Service Announcement on Treatment of Leprosy

Because of the optimistic claims regarding the curative effects of chaulmoogra oil derivatives in the treatment of leprosy, the U. S. Public Health Service has issued a statement declaring that it is yet too soon for the medical profession to assume that a permanent remedy has been found. Of the patients paroled from the leprosy stations of the U. S. Public Health Service in the Hawaiian Islands, 8 per cent. have relapsed and returned for treatment. The statement declared that this was to be expected and that, on the whole, the results have been so favorable as to make the treatment of the disease hopeful. But it is said that while the ethyl ester of chaulmoogra oil, the use of which has now supplanted the oil itself, constitutes a most valuable agent in the treatment of leprosy, particularly in the early stages, the cure cannot be recorded as permanent.

Foreign Letters

PARIS

(From Our Regular Correspondent)

Nov. 25, 1921.

The Medicine of Argentina as Seen by a French Professor

In a previous letter I mentioned that Dr. Marcel Labbé, professor in the medical department of the University of Paris, had gone to Buenos Aires to hold a series of lectures on biology as related to clinical medicine. In a recent letter from Argentina addressed to the *Temps* he gives his impressions of the country. Labbé begins by stating that from the intellectual standpoint he did not feel at all strange in Buenos Aires. In medicine, especially, he noted that the same fundamental textbooks on anatomy, physiology and pathology are used by the students of Argentina that are used in France, and that the same medical conceptions, the same admiration for scientific achievements, the same ideas with respect to therapeutics prevail in the minds of physicians in both countries. Professional usage does not differ much from that of France. The family life, however, is more completely separated from the professional life, owing to the fact that many practitioners have their consultation office distinct from their residence, which is rarely the case in France. Physicians of Buenos Aires cannot be accused of having antiquated ideas. They are acquainted with the most modern ideas and the most recent technic. The application of electricity and roentgen rays to medicine has been widely developed. Everything new awakens interest, and the enthusiasm for therapeutics is even greater than in France. The use of organotherapy and vaccinotherapy, together with arsphenamin, has increased to a great extent. There are numerous hospitals in Buenos Aires, and those that have been built lately, while not luxuriously equipped, are well adapted to the needs of present-day medicine. The laboratories connected with the hospitals of Buenos Aires are of a character to awaken the envy of the hospitals of Paris. Labbé admits that in the medical curriculum of Argentina laboratory work plays a more important part than in France. The reason for this is that everything connected with science awakens respect. Argentine physicians do not view laboratory researches with suspicion, such as is sometimes evident among French physicians. They are fond of mechanical accomplishments, and admire improved instruments and the wonderful installations of intricate mechanism, in which the North Americans excel. Labbé has only one criticism to make in regard to the course of study; namely, that the curriculum requires of students only two years of attendance on hospital services. Some students offset this insufficiency by voluntarily following the clinics of professors during their third and fourth year, but all do not show such zeal, and it is to be feared lest many young physicians may receive a somewhat superficial instruction from the practice side. In view of the extensive development of the hospital services in Buenos Aires, it would be easy to require of all students a period of clinical attendance, beginning at least with their third year. Perhaps, however, the students themselves, now that they have obtained through their chosen delegates a representation at faculty councils, may demand this improvement in clinical training, to which, in France, so great importance is attached.

Motion Pictures in the Teaching of Obstetrics

At the twenty-fifth congress of alienists and neurologists, Dr. Long of Geneva demonstrated the didactic value of motion pictures, not only for the comparison of various clinical types but also for the demonstration of rare cases (THE JOURNAL, Sept. 24, 1921, p. 1033). Dr. Wallich, obstetric surgeon to the Paris hospitals, has recently called attention to the application of motion pictures to the teaching of obstetrics. As far back as 1916, Wallich had an obstetric film made, recording various interventions (forceps delivery, basiotripsy, embryotomy) carried out on the manikin, to give students an opportunity of observing something more of the operations than the exterior movements of the instruments and of the hands of the operator, as is the case when the operation is performed on the living subject. In order that all those who may wish to resort to this graphic aid to teaching may profit by his experience, Wallich explains certain points in regard to the manner of preparing an obstetric film and the best mode of exhibiting it.

To secure a satisfactory film of an operation, it does not suffice to call in an expert with his apparatus and to perform the operation before him. If we make no further preliminary preparations than this, we obtain only a film in which one may see various persons in aseptic uniforms moving about the patient, covered with sheets, through which, perchance, a wound may be perceived, sometimes very small and often black with blood, in which gloves and instruments may be seen going in and out. It is evident that this is not the sole aim of a kinetographic film. But by means of a better arrangement, with adequate natural or artificial illumination, with apparatus properly placed and well focused on the operative field, the region of interest can be shown and the precision and the succession of movements may be recorded; in other words, the surgeon's *form*, or style of operating, can be brought out. We shall thus be able to preserve the operative methods of various masters of our time, which may constitute for the present—and perhaps still more for future generations—a most interesting record. But we cannot expect that these films will teach us anything more than can be learned by witnessing an operation from the seats of the amphitheater. It is more a question of becoming acquainted with an operator than it is of learning the method of performing the operation. Still another method of preparing a film consists in confining one's attention to the operation itself, without troubling about the operative setting, the operator or the patient. It is evident that these conditions can only be realized when the operation is performed in the amphitheater and on the cadaver. In order that such a film may be instructive, all the conditions necessary for a demonstration must be met. Perfect lighting conditions are needed, and the operation must be performed directly in front of the camera, so as to allow the photographer an opportunity to change the position of his apparatus to suit each stage of the operation. It is also essential to request the operator to be careful not to veil the operative field either by his arm movements, or his body or head. A real scenario must be worked out as for an ordinary commercial film, and it will require patience and repeated trials and rehearsals if good results are to be secured. One must, in fact, be as good a stage manager as operator. A film thus obtained will stand a chance of depicting accurately the movements of the surgeon and the effects thereby produced.

A few suggestions in regard to the best method of displaying a film, Wallich thinks may not be out of place. He advises winding off a reel at medium speed, with a view to reproducing the original character of the movements, without trying to produce the illusion of an operation performed with marvelous rapidity. After having shown the operation at normal speed, it is well to break up the movements by showing them at reduced speed and by stopping the film now and then. This reduction in speed or stopping is not feasible without the use of an apparatus equipped with metal lamps, which throw out less heat and do not damage the celluloid

film. An apparatus with such equipment does not give quite as clear a picture as the ordinary machine. It is therefore reenforced by projecting it on a metallic screen.

If the attention is fixed too long on the luminous screen, the eyes get tired, and it is found helpful if the instructor gives a running commentary on the picture and indicates, with the aid of a pointer, the interesting features to be considered. This method has the advantage that it eliminates the number of explanatory subtitles, which cause, when numerous, too many interruptions in the succession of movements.

Furthermore, it may be well to note that films not only can be used for oral instruction, but also may be utilized in printed textbooks. The last edition of Wallich's Eléments d'obstétrique contains various illustrations showing different stages of an operative movement. By grouping together four or five such illustrations, the component parts of a movement are clearly shown, especially if each illustration is accompanied by a short and precise explanatory legend. In such a manner, we can demonstrate to the student better than with an ordinary illustration and more accurately than with a description the movements that he himself will be called on to execute when performing an operation.

LONDON

(From Our Regular Correspondent)

Nov. 21, 1921.

Damages Because Physician Did Not Use Roentgen Ray in Treating a Fracture of the Femur

A case in which a country general practitioner was mulcted in heavy damages should prove a warning not to undertake the treatment of a fracture, except in a very simple case, without using the roentgen rays. A woman while driving a dog-cart in the country was thrown out and sustained an injury to her right leg. A well-known local physician was sent for and diagnosed a fracture of the upper third of the femur. He treated her by a Thomas splint and extension, and had her removed to a hospital, where she was also examined by his partner, who agreed as to the diagnosis and treatment, and did not consider that the use of an anesthetic was advisable. No roentgenogram was taken, and it was elicited in court that the roentgen-ray apparatus at the hospital was out of order. About five weeks after the accident, the splint was removed and the weight removed. The physician found that union had taken place with only one-half inch (12.7 mm.) of shortening. He warned the patient against putting any weight on the leg for some time, and allowed her to go home about a fortnight later. Ten days after her return home the leg suddenly gave way. Her family physician was called in. He stated in evidence that the leg was 1¾ inches (44 mm.) shorter than the other, and that there was pain with swelling of the buttock and inability to raise the leg. He diagnosed fracture of the neck of the femur and advised a roentgen-ray examination, which confirmed his opinion. The patient was subsequently removed to a hospital in London, where an operation was performed. The medical evidence was contradictory. The patient's family physician stated that the fracture was in the neck of the femur and that an anesthetic should have been used at first. But Sir Hamilton Ballance, a well-known surgeon, said that he considered that an anesthetic was not indicated, as any struggling would have increased the damage round the fracture. He believed that refracture had occurred, owing to the patient's putting too much weight on the leg, and was satisfied with the treatment. His opinion was supported by Mr. H. E. Griffiths and Mr. Harold Wilson, surgeons of St. Bartholomew's Hospital. However, the jury awarded heavy damages against the physician. Their verdict was largely influenced by his failure to have a roentgenogram of the fracture taken.

Municipal Medical Socialism

In the reports on the working of the national health insurance act which have appeared from time to time in previous letters, it has been pointed out that this form of socialism is not likely to stop at its present point and in time will be extended. The providing of socialistic dentistry and a consultant service under the insurance act is being advocated just now. But it is a local body which immediately threatens an extension of medical socialism. The Willisden Urban District Council, a body which controls a district on the confines of London, is attempting to set up a local medical service partly at the expense of the ratepayers (as the government set up a medical service at the expense of the taxpayers). They have circulated a leaflet giving the following charges: Registration fee, 50 cents for mothers and children under the age of 5 years and for children attending the public elementary schools. For these will be provided outpatient medical and dental care, including specialist consultations, prescriptions, home nursing and dental, eye, throat, nose, ear, mothers', babies' and other clinics. Spectacles, 50 cents. Midwife cases at the municipal hospital, $10. Operative treatment of tonsils and adenoids, $2. Diseases of women, 75 cents a day. Diseases of children up to school age, 36 cents a day. In the case of patients whose circumstances are below the council's scale, the whole of the charges, except the registration fee, may be remitted. The local physicians are opposing the scheme on the ground that it is the business of the council to provide an efficient preventive service, that they have not the means to provide also a treatment service, and that therefore if both be attempted the former will suffer.

The Prevention of Venereal Diseases

At the sixth annual meeting of the National Council for Combating Venereal Diseases, the chairman, Lord Gorell, said that the longer he held office the more impressed he was with the value of the organization. The constantly increasing attendances at the treatment centers proved that people were beginning to recognize that treatment to be successful must be continuous. The educational work was a very hopeful feature of the council's operations. The council had dispatched three commissions to certain colonies and seaports abroad to investigate the conditions obtaining there. Dr. A. F. Wright, one of the commissioners to the West Indies, urged that action be taken to prevent women boarding ships for prostitution. The conditions in many ports were beyond description. Treatment ought to be available in every ship putting to sea, and every ship's doctors ought to be competent to give injections. In some of the smaller West India islands the provisions for dealing with venereal diseases were disgracefully bad.

The General Medical Council

At the opening of the session of the General Medical Council, the president, Sir Donald Macalister, stated that no progress had been made in establishing medical reciprocity with Belgium. Belgian physicians registered here (a privilege granted to them during the war) retained their right to practice, but no corresponding privilege remained to British physicians registered in Belgium, unless they had independently acquired a local qualification there. As regards Spain, the former statute under which foreign physicians might individually obtain special permission to practice was still valid. The whole question was being reconsidered by the Spanish authorities, and it was possible that fresh legislation

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might admit of reciprocal recognition of professional qualifications.

THE TRAINING OF HEALTH OFFICERS

The president pointed out that the rapid growth in the number and importance of functions of health officers made it necessary that the council should from time to time revise the conditions prescribed for their training and examination. For the modern public health service the qualification should be more than an academic certificate, attainable after nine months or so additional study by a graduate who had just obtained his license to practice. It should imply a greater maturity of outlook, a deeper knowledge of principles and a fuller practical acquaintance with administrative methods than an inexperienced physician could fairly be expected to compass within a year. Something equivalent to a short apprenticeship in a working public health department was needed to supplement the lectures and demonstrations of the class room and the laboratory.

Institute of Parasitologic Research Opened at Cambridge

The ceremony of the opening of the Molteno Institute of Parasitological Research at Cambridge was attended by many distinguished scientists, including Prof. R. M. Caullery of the Sorbonne, Paris, who said that as long as private enterprise was capable of creating such an institution for the benefit of the whole world, the preeminence of the Anglo-Saxon race was assured. The donor of the institute is Mr. P. M. Molteno, son of Sir John Molteno, first prime minister of the cape, and Mrs. P. M. Molteno, daughter of Sir Donald Currie, another of the great South African pioneers. Their knowledge of the research work at Cambridge led them to make a gift of $150,000 to the university for the building of the new institute, and during the year they have supplemented this with a gift of $18,000. It is hoped that the institute will play a great part in scientific progress, particularly in the investigation of tropical diseases.

MEXICO CITY

(From Our Regular Correspondent)

Nov. 20, 1921.

Second Congress of Biology

The Mexican Biological Society has just held its second annual meeting. Among the most interesting reports may be mentioned: that by Prof. Miguel Cordero regarding the results obtained in the determination of the caloric value of popular Mexican foods, it being found that pulque contains a large quantity of vitamins; Dr. Pous Cházaro's paper on the curability of liver cirrhosis of malarial origin; one by Dr. Izquierdo on the blood count of lepers; three by Dr. Eliseo Ramírez, one on the possible elimination of lipoids produced by corpora lutea in menstrual blood and the serologic reactions of this blood; another, on the elements composing menstrual blood, simple blood and those derived from genital mucosae, and still another on the location of neuron bodies and the direction of the nerve fibers in the brain cortex of the chameleon; a report by Drs. Varela and Vergara summarizing the status of our knowledge on nonspecific protein therapy; a report by Dr. Gabriel Malda on practical, medical and surgical applications of the study of the anatomy of the leg; a report by Dr. F. Ocaranza, assisted by other workers, describing the result of total experimental thyroparathyroidectomy in the dog or double vagotomy in the same animal; another by Castillo Nájera, who, after weighing numerous viscera of healthy Mexicans who met accidental deaths, has determined that in these cases the brain is within the limits corresponding to superior races, while the size of the spleen is larger, which might be explained by the polycythemia of altitudes; another communication sent from Spain by Dr. Muñoz Urra on a detailed histologic study of the origin and direction of the fibers of the motor oculi and establishing the relation of the anatomic findings with doubtful questions of neurotropism; another communication by Dr. Sylvio Bonansea on the biologic determination of sex, and finally a very thorough historical essay by Professor Arriola showing the knowledge possessed by some of the native races of Mexico on anatomy, physiology and psychology.

Yellow Fever Convention

In order to review the work accomplished since June, 1920, to date, to control yellow fever in Mexico and to formulate a program for the campaign to be carried out in 1922, the public health department called a meeting attended by the personnel of the special commission in charge of the campaign and the public health officers who carry out locally the measures approved. The meeting was presided over by the head of the department, Dr. Malda; Dr. Theodore C. Lyster acted as vice president. After listening to the reports submitted by the several physicians in charge of the campaign, it was determined that in comparison with the cases reported in 1920, the disease had decreased. While several cases had been discovered in towns considered immune, this is explained by the fact that they are investigated with more care. The most important endemic foci, such as Vera Cruz and Mérida, may be considered as cleared out, and now efforts must be centered on the small towns in which, because of the small number of nonimmune subjects, no attention has been paid to the disease heretofore. It came out that many cases of yellow fever are overlooked, thus endangering public health, being diagnosed as hemorrhagic malaria either through ignorance or through malice. *Gambusia affinis* and other larva-eating fish have proved in Mexico as elsewhere a splendid destroyer of *Stegomyia* larvae, and their use is the method most in favor in the antimosquito campaign. In the coming year an increase will be made in the personnel charged with the duty of fighting yellow fever, extending these operations to remote towns, and the prophylactic measures so far employed (isolation of patients, compulsory reporting of the disease, fumigation of infected places, use of Noguchi's vaccine and larva destruction by fish) will be continued, as well as therapeutic measures consisting in the use of Noguchi's serum or neo-arsphenamin if the serum cannot be obtained during the first three days of the disease. It was also decided to carry out some experiments to test the assertion of Dr. Caballero of Barcelona, who declares that the culture of the alga called *Chara foetida* is an efficient way to prevent the development of *Stegomyia* larva in water receptacles and also to prepare educational moving pictures in order to push the campaign of propaganda, so far carried out only by means of pamphlets, posters and lantern slides. During the present year the Mexican government has spent more than 600,000 pesos ($300,000) in the yellow fever campaign, and the same policy will be followed next year, so far as public funds permit. The congress sent telegrams of greeting to General Gorgas' widow, to Dr. Noguchi and to the Rockefeller Foundation, and placed a wreath before Licéaga's monument.

Children's Week

During September there was celebrated all over the country the first centenary of the declaration of the National independence, accomplished in 1821 by the Mexican hero Agustin de Iturbide. The public health department did its share in the celebration, organizing the children's week. This was devoted to an educational campaign among all social classes as to the advantages and practice of infant hygiene. An exposition was held in which there were exhibited posters and statistical charts on infant morbidity and mortality. In

addition, there were given practical demonstrations on bathing, general cleaning, clothing and rearing of children, as well as lectures on sanitary questions by physicians who specialize in pediatrics. Finally, automobile excursions were offered to the children. Children's week was a success, as thousands of people, especially mothers, attended the lectures and demonstrations. The president himself participated, and it is now proposed to repeat the children's week in other parts of the republic.

BERLIN

(From Our Regular Correspondent)

Nov. 25, 1921.

New Regulations in Berlin in Regard to Disinfection and Fumigation

Last spring new, simplified regulations with regard to disinfection in infectious diseases were promulgated for Prussia, and recently new regulations for Old Berlin were established, with reference to which Prof. Dr. Seligmann, of the municipal health department, has issued an explanatory statement. In the future, in every case of a notifiable infectious disease, a city disinfector will call on the family and leave a blank for the physician to fill out, in which the latter will state whether he himself will see that the required disinfection is carried out during the course of the disease and at its termination or whether he will leave both forms of disinfection or fumigation to the health department (just as formerly was done in the case of diphtheria). If the physician agrees to assume all responsibility, the disinfector withdraws from the case and does not call again until toward the end of the course of the disease, at which time he consults the wishes of the physician with regard to the terminal disinfection. If, in the meantime, the patient is transferred to a hospital, or death ensues, the attending physician must assume the responsibility for the prompt application of the terminal disinfection (compulsory notification to the police department). But if the application of disinfection is left to the health department, the city disinfector procures the disinfectants, which are furnished gratuitously by the city, and by frequent visits sees to it that the supply does not give out and that the attending personnel is instructed as to the proper manner of using them. The terminal infection he will look after himself after the termination of the illness, in accord with the attending physician. Disinfection is carried out ordinarily in accordance with the simplified form, but in special cases; for example, in boarding houses and in crowded and insanitary dwellings, the old and more drastic measures are still employed. On every case he must render a report to the *kreis* physician (county physician) and must also state the wishes of the attending physician. According to law, the *kreis* physician is entrusted with the general oversight. If he sees fit, he can determine the form of disinfection to be employed—even contrary to the advice of the attending physician.

Effect of the War on the Population

From the reports of the Saxon bureau of statistics we glean the following data in regard to the changes in population brought about by the war: But for the war the population of the German Empire (in its old extent) would be now at least 72,000,000. The decrease in the birth rate plays a more important part than the increase in the deaths. The birth loss is estimated at 3,500,000 lives, which is considerably greater than the loss on the battle fields (almost 2,000,000). The birth loss may be partially compensated for by an upward trend in the number of marriages entered into annually and by an increase in the number of children born to each couple. Before the war, there were about 41,000 marriages contracted annually in Saxony. In the period from 1914 to 1918, however, only 141,000 marriages were entered upon, as compared with the normal 205,000, which shows a shortage of 64,000. However, by the end of 1920 the number of marriages that, owing to war conditions, had not been consummated had been more than compensated for; in fact, there was an overrun of about 16,000, which by the middle of 1921 had been increased by 10,000 more. This sudden increase is explainable, in part, by the large number of early marriages entered into by young men who, under the old conditions, would not have married so young. And this epoch of eagerness to enter the married state does not seem to have reached its culmination. Whether a marked increase in births will follow this increase in the number of marriages per quarter remains to be seen. Before the war, there were from 9,000 to 10,000 births annually in Saxony; in November, 1918, however, there were only 3,000. Since the middle of 1919 the births have equaled the deaths, so that since then there has been a natural increase in population. Infant mortality during the war actually decreased, doubtless because greater care was given to both mother and child. Another peculiarity of the war period was the change in the relative proportion of boy births and girl births. Whereas formerly there were 106 girl babies to 100 male infants, there are now 100 boy babies to 100 female infants. As regards the increase in the number of deaths during the war, the statistical report states that in Saxony, under normal conditions, there would have been 175,000 deaths, whereas under the existing conditions, owing to the food blockade, there were 238,000 deaths, an increase of 63,000. For the whole German Empire the increase in deaths was 750,000.

Increase in Medical Fees

In keeping with the recent rapid depreciation of the German mark, the executive committee of the Berlin Aerzte-Kammer has established 20 marks as the ordinary fee in Berlin for a private office consultation and 30 marks for a visit in the patient's home. This constitutes about a tenfold increase over the prewar tariff. This increase in fees will be understood when it is noted that, according to a statistical report, only 3.62 per cent. of the Berlin physicians on the panel of the health insurance societies derive from their health insurance practice an income in excess of the sum established as the minimum required for existence.

Death of Max Verworn

Max Verworn, the naturalist and philosopher, died recently at the age of 57. Since 1910 Verworn has occupied the chair of physiology at the university of Bonn. His works deal chiefly with scientific investigations on the fundamental processes of life. The study of the lowest (unicellular) forms of animals and plants—the so-called protista (Haeckel)—he regarded as the point of departure for his investigations. The life processes of these primitive forms of life he looked upon as the beginnings of reaction upon the external world, just as he recognized the significance of the cellular nucleus for the nutrition and development of the cell. His biogen hypothesis (1902)—the biogens are the active protoplasmic units, the mysterious chemical compound, from the catalytic metabolism of which Verworn derives all life processes—was the point of departure for his many attempts to demonstrate that organic life is a chemical process.

Besides many important works and articles on physiologic subjects, such as "Erregung und Lähmung" (excitation in relation to paralysis), he marked out in his "Allgemeine Physiologie" (general physiology) the present recognized relationships between anatomy, physiology, zoology and the theory of evolution. The philosophic deductions associated with his views on biology and the other natural sciences Verworn has grouped together in the form of an original monistic theory, which he has expounded in a number of volumes and pamphlets.

THE REFERENDUM ON THE USE OF ALCOHOL IN THE PRACTICE OF MEDICINE

During the first week of December the questionnaire given in full in THE JOURNAL, December 3, p. 1820, was sent to 53,900 physicians of the United States. The list included 43,900 names from the mailing list of THE JOURNAL, every other name being selected, and 10,000 from among those physicians who are neither members of the organization nor subscribers to THE JOURNAL, a similar method being adopted, using the American Medical Directory. The total number of returns is 32,585, or 60 per cent. of the number sent out. The analyzing and tabulating of the results is time-consuming, and it probably will be three or four weeks more before final figures can be published. No tabulation of disease conditions, of unnecessary deaths and suffering, or of the number of times a month that these beverages have been prescribed is included in the preliminary reports. These, however, will be analyzed in the final report. We publish this week the results in Illinois and Indiana. The results will be published by states, week by week, as the tabulations are completed.

ILLINOIS

The present Illinois law was passed by the legislature in May, 1919. It provides for complete prohibition but allows physicians who hold permits to write not more than 100 prescriptions for whisky or brandy for 1 pint each every three months. The prescribing of beer or wine as medicines is forbidden.

According to the American Medical Association Directory for 1921 there are in Illinois 10,651 physicians. Questionnaires were sent to 4,245; 2,141, or 50 per cent., were returned. Of these, a small number returned blank or filled out by medical students, hospital interns, etc., were not counted.

Is Whisky a Necessary Therapeutic Agent?

One thousand one hundred and forty-nine physicians in their replies held that whisky was a necessary therapeutic agent in the practice of medicine; 954 were of the opinion that it was not necessary. Chicago physicians voted: yes, 535; no, 323. The vote in four other cities of more than 50,000 was: yes, 50; no, 51, giving a total vote for the cities of: yes, 585; no, 374. The rural part of the state voted: yes, 564; no, 580.

RESULTS IN ILLINOIS

ILLINOIS	Chicago	Peoria	Springfield	Rockford	East St. Louis	Total Cities	Rural and towns with population less than 50,000	Grand Total
Number of physicians	5,565	185	127	111	93	5,881	4,770	10,651
Questionnaires sent	1,983	76	59	56	45	2,219	2,026	4,245
Total questionnaires received	866	37	21	26	17	967	1,174	2,141
Percentage of returns	43	48	35	46	37	43	58	50
General practitioners	641	26	14	21	14	716	1,036	1,752
Surgeons	135	3	3	2	1	144	55	199
Specialists	90	8	4	3	2	107	83	190
Do you regard whisky as a necessary therapeutic agent in the practice of medicine?								
Yes	535	22	10	9	9	585	564	1,149
No	323	15	11	17	8	374	580	954
Do you regard beer as a necessary therapeutic agent in the practice of medicine?								
Yes	330	11	5	5	6	357	311	668
No	510	26	15	20	19	581	847	1,428
Do you regard wine as a necessary therapeutic agent in the practice of medicine?								
Yes	419	13	5	4	7	442	362	804
No	423	23	16	21	10	493	795	1,288
Have instances occurred in your own practice in which unnecessary suffering or death has resulted from the enforcement of prohibition laws?								
Yes	158	4	3	1	3	169	236	405
No	622	29	17	23	14	705	884	1,589
How many times have you found it advisable to prescribe these liquors in a month?								
Whisky: Number of physicians stating times advisable	265	14	5	10	9	303	396	699
Number of physicians stating no times advisable	226	14	10	12	6	268	436	704
Beer: Number of physicians stating times advisable	91	3	...	1	3	98	106	204
Number of physicians stating no times advisable	371	19	13	18	12	433	658	1,091
Wine: Number of physicians stating times advisable	151	4	1	1	4	161	147	308
Number of physicians stating no times advisable	337	18	12	19	11	397	633	1,030
Do you hold a federal permit?								
Yes	520	22	9	11	11	573	463	1,036
No	232	12	9	10	5	268	506	774
The present regulations limit the number of prescriptions to 100 in three months. In your opinion, should there be any limit to the number of prescriptions for alcoholic liquors a physician may write?								
Yes (limit not specified)	75	3	3	2	2	85	150	235
Restricted absolutely	56	7	2	4	4	73	170	243
1 to 50 prescriptions	91	4	3	5	1	104	138	242
51 to 100 prescriptions	188	10	4	8	2	212	205	417
More than 100 prescriptions	29	1	..	..	1	31	30	61
Total	439	25	12	19	10	505	693	1,198
No restriction	367	12	8	6	6	399	428	827
In your opinion, should physicians be restricted in prescribing whisky, beer and wine?								
Yes	415	25	15	19	9	483	680	1,161
No	415	12	5	6	7	445	496	891

Is Beer a Necessary Therapeutic Agent?

On this point, 668 voted yes, and 1,428 physicians voted no. In Chicago, the vote was : yes, 330; no, 510. The total city vote was: yes, 357; no, 581 and the rural vote was: yes, 311; no, 847.

Is Wine a Necessary Therapeutic Agent?

On this question 804 voted yes, and 1,288 voted no. The Chicago vote was 413 for and 423 against the use of wine. The total city vote was 442 for to 493 against. The country districts voted: yes, 362; no, 795.

Unnecessary Suffering or Death from Enforcement of Prohibition Laws

Four hundred and five physicians reported cases of unnecessary suffering or death from the prohibition of alcoholic liquors; 1,589 had not known any such cases. The detailed vote will be found in the table above as to towns and cities.

Times Per Month Prescribing Advisable

Seven hundred and ninety-nine physicians reported that they had found it advisable to prescribe whisky, the number of times ranging from once or twice to ten or more times a month; 764 reported that they had not found it advisable. Two hundred and four had found it advisable to prescribe beer; 1,091 had not found it advisable. Three hundred and eight physicians found it advisable to prescribe wine; 1,030 had not found it advisable.

Restriction of Prescriptions

Regarding the restriction of physicians in the number of prescriptions for alcoholic liquors, 827 physicians were opposed to any limit on the number of prescriptions which a physician might write; 1,198 were in favor of some kind of restriction. Of these, 235 simply voted in favor of restriction without specifying any limit; 243 were in favor of absolutely prohibiting the physician from prescribing; 242 were in favor of allowing the physician to prescribe from one to fifty times in three months; 417 favored a limit of from fifty-one to 100 prescriptions in three months, and sixty-one were in favor of allowing more than 100 prescriptions in three months.

Should Physicians Be Restricted in Prescribing Alcoholic Beverages?

One thousand one hundred and sixty-three were in favor of restriction, and 891 were opposed to restricting physicians in any form.

Suggestions as to Restrictions

Many interesting suggestions were made. It is possible to quote from only a few of the more representative ones.

All prescriptions should be filled by the government and not by druggists. If the matter of dollars was taken away from prescription writing for alcohol, ten prescriptions would be ample for three months' actual needs.—*Dupage County.*

I consider things as they are radically wrong. We have physicians who are using their quota of prescriptions asking no questions as to whether or not the applicant really needs the whisky, while other physicians who do not want to be bootleggers often have difficulty in obtaining alcoholic liquors they really need. I doubt if any man could use legitimately 100 prescriptions every three months.—*Pike County.*

Any physician should be allowed the privilege of prescribing whisky or beer in his practice without having a license. He should not be allowed to use it more than three times in three months. Then the privilege would not be abused as it is now.—*Whiteside County.*

In over thirty years of practice, I have prescribed whisky in every case in which I thought it would help the patient. In this time 3 gallons would cover the entire amount I have prescribed.—*Livingston County.*

I would a thousand times rather the state or federal government would appoint an officer or establish an office in each township and county whose whole function would be the honest distribution of beer, wine or whisky to those actually in need of it. In other words, take the power entirely out of our hands and put it under government control.—*Will County.*

A suggestion: Divide each state and city into certain sized districts. In each district have one physician to issue the required government prescriptions. Allow every physician in good standing to use his personal prescription blanks. Then the patient can take the prescription to the doctor who issues the required government permit.—*Kendall County.*

As matters stand today, I would favor putting alcoholics under restrictions similar to what the Harrison law does to narcotics.—*Champaign County.*

A physician should not be restricted or prohibited in the use of any agent for the alleviation of human suffering and the prolongation of human life.—*Champaign County.*

I am opposed to the internal use of alcohol in any and all diseases, and never advise its use.—*Clay County.*

The average physician is anxious to maintain the dignity of his profession. He must, however, realize the peril that awaits the profession if the present lax condition continues and the indiscriminate sale of alcohol is encouraged.—*Dewitt County.*

While I consider all alcoholic liquors, even alcohol itself, as entirely unnecessary in the practice of medicine, I do not believe that physicians should be restricted in their use of any substance which their judgment may indicate in any particular case.—*Chicago.*

I prescribe whisky because it seems I cannot help it with many old friends and patients. I wish they would take away permits from us.—*Chicago.*

Physicians should only be allowed to prescribe for bed patients so as to rid the profession of the physician who is practically running a saloon.—*Chicago.*

The present situation of restricting prescriptions to 100 in three months does not cover the situation. A physician who has a large number of patients is unable to treat a great many of them as he would like.—*Chicago.*

I have written only about fifteen prescriptions for whisky or brandy during the past year and a half, and I consider that 100 prescriptions in three months is enough; but I do not believe any group of lawmakers or laymen should have the right to tell physicians what they should do.—*Chicago.*

If whisky or brandy is necessary, why not issue them from a government dispensary instead of making barkeepers out of doctors?—*Chicago.*

Have we not enough regulations now? To encourage restrictions in one field is only to encourage them in others, and the doctor is regulated and permitted to death now.—*Chicago.*

This question involves practical measures. I would suggest the following: (1) high license to cover expense; (2) heavy penalties for breaking the law; (3) adequate medical inspection.—*Chicago.*

The Harrison Narcotic Law should apply to the liquor question and enforced in the same manner as it is on narcotics.—*Chicago.*

Whisky should be purchasable from the government warehouse by any applicant who brings proof that he is a reputable, law-abiding citizen and has never been convicted of a crime. It should be a penitentiary offense to dispose of whisky so obtained.—*Chicago.*

The American Medical Association should so restrict its members that the unethical use of prescriptions for alcohol would cease.—*Chicago.*

As a young physician I imagined that I could not treat certain diseases without the use of whisky or brandy, but after years of experience I find that my patients do as well if not better without them.—*Chicago.*

I would wipe alcohol off the menu of therapeutic agents. If this were done I am certain that the new generation of physicians accustomed to the use of better agents than alcohol would have as good results or better.—*Chicago.*

Freedom to prescribe alcohol will on the average cause more harm than good. It is better to restrict those who will prescribe whisky than to give free rein to the alcohol enthusiast.—*Chicago.*

I think the 100 limit should be cut down to fifty, and the quantity to 8 ounces instead of 16 for the next year, and thereafter a limit of twenty-five prescriptions of 4 ounces each every three months. This plan would let the topers off gradually and would ultimately lead the medical profession out of the disgrace which has been shifted upon it.—*Chicago.*

We need higher standards for the practice of medicine.—*Chicago.*

Some such restriction in the number of prescriptions each physician may write helps to take away temptation from the weak physician to commercialize this part of his practice.—*Chicago.*

INDIANA

The Indiana Prohibition Act was adopted in February, 1917, and became effective, April 2, 1918. It took the place of the local option law which had previously been in force. The present law prohibits the manufacture and sale of any intoxicating beverages for any purpose whatsoever.

According to the American Medical Association Directory, 1921, there are 4,446 physicians in Indiana. Questionnaires were sent to 1,539; 966, or 63 per cent., were returned. Of these, a small number were thrown out as incomplete, from interns, dentists, etc.

Is Whisky a Necessary Therapeutic Agent?

Three hundred and sixty-two physicians stated that whisky is a necessary therapeutic agent in the practice of medicine; 598 physicians stated that it is not necessary. In Indianapolis, the vote was: yes, 75; no, 81. In five remaining cities of more than 50,000 population, the vote was: yes, 49; no, 80. In cities and villages under 50,000 population, the vote was: yes, 238; no, 437.

Listing the various conditions for which those voting yes found whisky necessary, by far the largest number cited pneumonia and similar infectious diseases; next came general debility in the aged, and following this colds, heart disease, toxemias, postoperative shock, diabetes and a large assortment of individual diseases.

Is Beer a Necessary Therapeutic Agent?

One hundred and eighty-seven physicians stated that beer is a necessary therapeutic agent in the practice of medicine, and 765 physicians voted "no." In Indianapolis, the vote was: yes, 43; no, 111; in five cities of more than 50,000 population, yes, 30; no, 99; in the rural districts, yes, 114; no, 555.

Among the conditions in which those voting yes considered beer as necessary, its use for promoting secretion of milk in

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lactating women and its nutritious qualities in anemia, general debility, etc., are chiefly emphasized.

Is Wine a Necessary Therapeutic Agent?

Two hundred and eleven physicians considered wine a necessary therapeutic agent in the practice of medicine, whereas 740 did not. In Indianapolis, the vote was: yes, 45; no, 108; in five smaller cities, yes, 31; no, 99; in the rural districts, yes, 135; no, 533.

Those voting yes considered wine necessary chiefly for debilitated conditions, and as a substitute for whisky.

Unnecessary Suffering or Death from Enforcement of Prohibition Laws

One hundred and eighty-nine physicians had found cases of unnecessary suffering or death resulting from prohibition of alcoholic liquors; 741 had found no such cases. A detailed statement as to the city and rural vote appears in the table.

Times per Month Prescribing Advisable

One hundred and sixty-three physicians had found it advisable to prescribe whisky, and 548 had not found it advisable, the number of times advisable varying from a few times a month to more than ten times, as reported by thirty physicians.

Sixty-five physicians had found it advisable to prescribe beer, five of them in more than ten cases, and 664 physicians had not found it advisable. Sixty-four had found it advisable to prescribe wine, seventeen of them in more than ten cases, and 654 had not found it advisable.

Restriction of Prescriptions

Five hundred and eighty-three physicians stated that physicians should be restricted in the number of prescriptions for alcoholic beverages which they might write, and 291 physicians did not believe such restrictions necessary. One hundred and twenty-one physicians answered yes, but did not specify a limit; 249 stated that the number should be limited to absolutely none; eighty-nine considered fifty prescriptions for three months sufficient; 114 considered from fifty to 100 satisfactory; ten considered 100 insufficient.

Should Physicians Be Restricted in Prescribing Alcoholic Beverages?

Six hundred and fifty physicians stated that some restriction was necessary, and 275 stated that no restrictions were necessary.

The suggestions as to the restrictions which should be made showed that many physicians had been giving the problem much thought. Various plans were suggested for better control. These will be more thoroughly considered in the final analysis.

RESULTS IN INDIANA

INDIANA	Indianapolis	Fort Wayne	Evansville	Terre Haute	South Bend	Gary	Total Cities	Rural	Total City and Rural
Number of physicians	709	152	139	125	106	67	1,298	3,148	4,446
Questionnaires sent	304	65	49	45	35	27	525	1,014	1,539
Total questionnaires received	156	44	27	21	25	14	287	679	966
Percentage of returns	51	67	55	46	71	51	54	67	63
General practitioners	105	27	20	18	18	11	199	612	811
Surgeons	24	7	3	2	3	2	41	25	66
Specialists	27	10	4	1	4	1	47	42	89
Do you regard whisky as a necessary therapeutic agent in the practice of medicine?									
Yes	75	16	6	11	10	6	124	238	362
No	81	28	21	10	13	8	161	437	598
Do you regard beer as a necessary therapeutic agent in the practice of medicine?									
Yes	43	10	3	5	8	4	73	114	187
No	111	34	24	15	16	10	210	555	765
Do you regard wine as a necessary therapeutic agent in the practice of medicine?									
Yes	45	11	3	6	7	4	76	135	211
No	108	33	24	15	17	10	207	533	740
Have instances occurred in your own practice in which unnecessary suffering or death has resulted from the enforcement of prohibition laws?									
Yes	39	10	4	4	6	3	66	122	188
No	113	34	18	16	18	11	210	527	737
How many times have you found it advisable to prescribe these liquors in a month?									
Whisky: Number of physicians stating times advisable	25	13	3	4	2	1	48	115	163
Number of physicians stating no times advisable	78	22	18	14	14	8	154	394	548
Beer: Number of physicians stating times advisable	10	5	..	2	3	..	20	45	65
Number of physicians stating no times advisable	92	31	22	16	14	8	183	481	664
Wine: Number of physicians stating times advisable	16	4	1	..	..	..	21	43	64
Number of physicians stating no times advisable	87	31	21	18	16	8	182	473	655
Do you hold a federal permit?									
Yes	8	2	..	..	1	1	12	15	27
No	46	10	10	4	11	1	82	198	280
The present regulations limit the number of prescriptions to 100 in three months. In your opinion, should there be any limit to the number of prescriptions for alcoholic liquors a physician may write?									
Yes (limit not specified)	28	4	4	2	2	1	41	80	121
Restricted absolutely	20	15	4	2	..	4	45	204	249
1 to 50 prescriptions	15	2	1	5	3	1	27	62	89
51 to 100 prescriptions	22	8	5	3	3	1	42	72	114
More than 100 prescriptions	..	..	..	..	..	..	1	9	10
Total	85	29	15	12	8	7	156	427	583
No restriction	54	12	9	8	15	6	104	187	291
In your opinion, should physicians be restricted in prescribing whisky, beer and wine?									
Yes	104	29	19	12	11	7	182	468	650
No	45	12	8	8	13	6	92	183	275

Individual Comments

The intensity of feeling of many physicians on this question caused them to write extended comments on the backs of the questionnaires. Some of these comments follow, the selection of those quoted being on the basis of their general interest. Names are omitted, but county or town is given.

It is unfortunate that unprincipled men get into the medical profession, and that the honest doctor must suffer to some extent for the acts of the dishonest one. Therefore I am not in favor of permitting physicians to prescribe alcoholics, for the reason that the permission would be abused by the unscrupulous men.—*Porter County.*

I believe physicians should have the right to use spirituous, vinous and malt liquors as they would any other drug whose efficacy they desire for proper therapeutic effects.—*Kosciusko County.*

I do not believe in any set of men legislating to dictate to physicians what and how they should use therapeutic remedies. Next they will be telling us how much to charge and what we should wear. It smacks of "state medicine," and, I believe, is unconstitutional.—*Clarke County.*

There should be no limit to the number of prescriptions a fully qualified physician is permitted to write. Those who abuse the privilege should be dealt with as are offenders of the narcotic law. The honest, conscientious physician should not be handicapped either by lay reformers or dishonest, unscrupulous practitioners.—*Madison County.*

I have seen more cases of delirium tremens the past year than I have ever seen in all my experience before. Every second home I go into makes its own hooch; many of them are showing the results of it. There is absolutely no respect for the prohibition law, so far as I can see. Beer is made in this community wholesale, and people vie with one another as to who can make the one with the biggest kick.—*Jennings County.*

The present federal law is very good, but state laws that go beyond should be repealed, e. g., Indiana.—*Shelby County.*

In my practice, very much more good has been done by the "bone dry" law than the little harm. I would much sooner go without it for the few cases it would help than see it sold from drug stores or saloons again.—*Huntington County.*

I do not believe that physicians should be hampered in the use of any drug which they deem of therapeutic value, but I do not believe that any physicians can conscientiously believe that spirituous liquors are beneficial in any disease and cannot be replaced by an equally beneficial drug.—*Owen County.*

Prohibition, as is, is a failure. More illness is being caused by home drinks than was ever caused before prohibition. We do not want any saloons back, that is sure. Allow the alcoholic medicine to be taken care of along the lines of the narcotics.—*Benton County.*

I have enjoyed a good general practice for twenty-five years, and, while I have used whisky to some extent in my practice during that time, I cannot recall any time when it was an absolute necessity.—*Tippecanoe County.*

Have used no alcoholic liquors in my practice during the last twenty-five years, and am feeling proud of my results.—*Corydon.*

As far as I am concerned, I am satisfied with the present law in Indiana. Have had little inconvenience and much pleasure from the present conditions. No friends asking for prescriptions, no evasions. Here they get it from a bootlegger if at all and not on my prescription. —*Connersville.*

I have practiced medicine nearly forty-two years and have never found spirits, vinous or malt liquors of any benefit whatever as either food or fuel, but have found it very harmful.—*Clay County.*

The government should enforce the laws we have.—*Parke County.*

I see no reason why anything other than a physician's judgment and conscience should determine his methods. The so-called enforcement does not actually prohibit, but makes fulfilment of needs or desires of a patient vexatious and expensive, besides incurring the dangers of sophistication. My observation in general is that the law is generally unpopular and that a substantial part of those publicly in favor of it privately prefer that it be enforced only against the other man. The use of home-made mixtures is tremendously increased, and many more women are using these mixtures than ever used officially made liquors. —*Newcastle.*

I do not believe the physicians should be made the scapegoat for breweries and booze fighters. Renegade physicians disgrace the profession by writing prescriptions for revenue.—*Kokomo.*

I am opposed to getting the medical profession tangled up in the efforts to enforce the prohibition act until there has been a sincere effort on the part of the federal government to make the Volstead law effective.—*Clinton.*

If one is competent to practice medicine and surgery and to deal with the health of a locality and in doing his duty must and does use many dangerous drugs and resorts to and uses many dangerous methods, then why should this same person be restricted in the use of some particular remedy which he regards as necessary?—*South Bend.*

The restriction on alcohol in Indiana is worse than that on liquors. There should be no restriction of the use of alcohol by physicians. —*South Bend.*

I believe thoroughly in prohibition, but am disgusted with the laxity of the enforcement and with the clash between the federal and state law. Physicians should not be interfered with in the choice of therapeutic agents.—*Indianapolis.*

The present agitation for the legalizing of the use of alcohol as a medicine I regard simply as an effort on the part of the wet element to effect a breach in the prohibition act. Temperance I regard as impractical, for the American people are not temperate in what they do in any line.—*Indianapolis.*

For two years the Indianapolis City Hospital has not had or used any whisky, beer or wine in the treatment of its cases, and no fatalities or unnecessary suffering has occurred as a result of this prohibition. —*Indianapolis.*

Why continue the use of such liquors when the disadvantages offset the advantages a million to one? The ravages of liquor are so apparent in my work that it makes me shiver to think any one could ever touch the vile stuff, and I was not a teetotaler either.—*Fort Wayne.*

The question is an economic one first and an ethical one as to the moral and physical development of the race. Finally, it is a moral question in its application to our family life. Let us give the mother and the child a chance.—*Fort Wayne.*

Indiana does not forbid prescribing liquors, but it is impossible to get such prescriptions filled because very few druggists carry whisky in stock. In the treatment of epidemic influenza in the army, our commanding officer offered to procure whisky for the hospital staff; but the fear of attracting the fire of the prohibitionists operated to prevent those who really believed that whisky was the best treatment for the infection from expressing their honest convictions. It certainly seems subversive of the best interests of the profession and the public to restrict the doctor in the use of any agent which he thinks of value in the treatment of any disease.—*Fort Wayne.*

Marriages

IRBY HOWARD HOYLE, Henderson, N. C., to Miss Mildred Bryan Walton of Assumption, La., at Napoleonville, La., November 23.

JOHN WILLARD VANN, M. C., U. S. Army, Washington, D. C., to Mrs. Vera L. Davis, at Norfolk, Va., December 3.

OSWALD SWINNEY LOWSLEY, New York City, to Miss Eldiva Brown of Northampton, Mass., December 10.

HERMAN E. WANGLER, Syracuse, N. Y., to Miss Elizabeth Pomeroy Peters of Dover, Del., recently.

WARREN LINCOLN ADAMS, Melrose, Mass., to Miss Vivian Beaman of West Medford, December 3.

ARCHIBALD LEROY RICE, Calexico, Calif., to Mrs. Edna Powers of Los Angeles, November 11.

HARRIET NEVINS BALLANCE to Mr. Leslie Robison, both of Peoria, Ill., December 3.

Deaths

Green Vinbon Woollen ● Indianapolis; Bellevue Hospital Medical College, New York City, 1865; practitioner for nearly half a century; secretary of the Indiana State Medical Association from 1865 to 1875; former president of the Marion County Medical Society; veteran of the Civil War; at one time professor of rhinology and laryngology, Central College of Physicians and Surgeons, Indianapolis; formerly superintendent and physician to the Indianapolis City Hospital for twenty-five years; died, December 10, from cerebral hemorrhage, aged 81.

Garrett Kouwenhoven Williamson Schenck ● Far Rockaway, N. Y.; Columbia University College of Physicians and Surgeons, New York City, 1901; physician to the Bradford Street, Coney Island and the Kings County hospitals; shot himself through the head while suffering from carcinoma of the stomach, December 6, aged 44.

William Lafayette Baber, Winnsboro, Texas; Southern Medical College, Atlanta, 1894; city health officer; formerly assistant professor of anatomy at his alma mater; served during the World War as instructor at Fort Oglethorpe, Ga.; died, November 28, at the St. Paul Sanatorium, Dallas, from acute nephritis, aged 48.

William Lewellyn Baner ● New York City; College of Physicians and Surgeons (Columbia University), New York City, 1885; member of the New York Academy of Medicine; for twenty-three years visiting physician to St. Vincent's Hospital, New York City; died, December 9, from cerebral hemorrhage, aged 60.

Charles T. King, Major, M. C., U. S. Army ● Riverside, Calif.; Medico-Chirurgical College of Philadelphia, 1906; served as temporary lieutenant colonel during the World War; retired from active service, June 4, 1920, for physical disability; died, September 7, from acute nephritis, in San Francisco, aged 42.

William W. Burgett, Fultonham, N. Y.; New York University Medical College, New York City, 1882; member of the Medical Society of the State of New York; at one time president of the Schoharie County Medical Society; county coroner; died, November 9, from carcinoma of the lung, aged 61.

George H. Gorham ● Bellows Falls, Vt.; New York University Medical College, New York City, 1882; formerly president of the Vermont State Medical Society; member of the state legislature; formerly secretary of the state board of medical examiners; died, November 28, from arteriosclerosis, aged 64.

Truman H. Cox, Lee Center, N. Y.; Cincinnati College of Medicine and Surgery, Cincinnati, 1875; member of the Medical Society of the State of New York; health officer for over

● Indicates "Fellow" of the American Medical Association.

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a quarter of a century; founder of a private sanatorium in Lee Center; died, December 2, aged 68.

Alexander Aloysius Drill ● Milwaukee; Marquette University School of Medicine, Milwaukee, 1916; chief surgeon of the Milwaukee Emergency Hospital; was instantly killed, December 11, aged 26, when the automobile in which he was riding collided with a street car.

Daniel Wunderlich Nead ● Reading, Pa.; University of Pennsylvania, Philadelphia, 1881; for thirty-two years medical examiner for the Pennsylvania Railroad; author of several historical works; died, December 1, at Chambersburg, Pa., aged 63.

George Henry Towle, Deerfield, N. H.; Bowdoin Medical School, Brunswick, Me., 1865; member of the New Hampshire Medical Society; practitioner for more than fifty years; member of the state legislature; died, November 30, aged 82.

Duncan D. Henderson, Caney, Okla.; Tulane University of Louisiana School of Medicine, New Orleans, 1899; formerly health officer, Jefferson County, Texas; died recently, following an operation for appendicitis, at Sherman, Texas, aged 46.

Albert Stone Garland, Gloucester, Mass.; Medical School of Harvard University, Boston, 1866; member of the Massachusetts Medical Society; practitioner for more than half a century; died, November 28, from heart disease, aged 81.

Wilmer Amos Hadley, Friendswood, Texas; University of Texas, Galveston, 1911; former surgeon, M. R. C., U. S. Army; was electrocuted, December 9, for the murder of his wife, in the penitentiary at Richmond, Va., aged 39.

William Homer Collins, Waterville, Wash.; Northwestern University Medical School, Chicago, 1909; died, November 4, at the Providence Hospital, Seattle, from uremia following an operation for stone in the bladder, aged 50.

William Reid Prime ● New York City; New York University Medical College, New York City, 1879; formerly medical inspector, U. S. Marine Hospital Service; died, December 5, from heart disease, aged 64.

Anton Sauer, LaCrosse, Wis.; University of Freiburg, Germany, 1897; formerly on the staff of the Mercy and St. Luke's hospitals, Davenport, Iowa; died, December 4, from chronic nephritis, aged 56.

Malcolm Macfarlan, Philadelphia; Medical Institute of Yale College, New Haven, Conn., 1865; Civil War veteran; practitioner for more than half a century; died, December 8, from senility, aged 80.

Oscar N. Thompson, Breckenridge, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1891; member of the Missouri State Medical Association; died, November 25, at Keokuk, aged 54.

George W. Glascock, Raleigh, Ill.; Beaumont Hospital Medical College, St. Louis, 1889; died, November 28, following an operation for appendicitis, at a hospital in Evansville, Ind., aged 69.

Pearl M. Sater, Hamilton, Ohio; Medical College of Ohio, Cincinnati, 1893; member of the Ohio State Medical Association; died, December 1, from cerebral hemorrhage, aged 52.

Vernon Marks Griswold ● Fredonia, N. Y.; University of Buffalo, N. Y., 1880; for fifteen years health officer of Pomfret; died, November 26, from cerebral hemorrhage, aged 67.

Robert Denniston ● Dobbs Ferry, N. Y.; Columbia University College of Physicians and Surgeons, New York City, 1895; died, November 18, from aneurysm of the heart, aged 51.

Henry E. Applebach, Philadelphia; University of Pennsylvania, Philadelphia, 1889; for many years surgeon at the Kensington Hospital for Women; died, November 16, aged 58.

Robert A. Craft, Sumner, Wash.; Queen's University Faculty of Medicine, Kingston, Ont., 1895; was found dead in his office, November 30, from heart disease, aged 59.

John A. Embry, Decatur, Texas; Missouri Medical College, St. Louis, 1884; member of the State Medical Association of Texas; died, November 24, from pneumonia, aged 73.

Cyrus F. Boyers, Fairmont, W. Va.; Baltimore Medical College, Baltimore, 1882; member of the West Virginia State Medical Association; died, November 18, aged 79.

William F. Conwell, Neligh, Neb.; Bellevue Hospital Medical College, New York City, 1886; Civil War veteran; died, November 9, from organic heart lesion, aged 74.

Eugene T. Hancock, Philiadelphia; Jefferson Medical College, Philadelphia, 1891; major during the Spanish-American War; died, December 6, from influenza, aged 51.

Charles Hutchinson, Portland, Me.; Albany (N. Y.) Medical College, 1858; practitioner for nearly half a century; Civil War veteran; died, December 5, aged 90.

Thomas E. Krum, Reading, Pa.; College of Physicians and Surgeons, Baltimore, 1886; also a druggist; died, November 21, following a nervous breakdown, aged 61.

Frederick W. Groth, Chicago; Jenner Medical College, Chicago, 1904; member of the Illinois State Medical Society; died recently, from acute nephritis, aged 68.

Nicholas Bray, Los Angeles; State University of Iowa College of Homeopathic Medicine, Iowa City, 1885; died, November 22, at Glendale, Calif., aged 66.

John McGinnis, Springfield, Ill.; Rush Medical College, Chicago, 1869; veteran of the Civil War; died suddenly, November 30, from heart disease, aged 78.

Harry M. Toner, Shelbyville, Texas; University of Arkansas, Little Rock, 1895; died, November 19, from chronic nephritis, in a hospital at Austin, aged 57.

William Childs, Church Point, La.; Tulane University of Louisiana School of Medicine, New Orleans, 1879; died, November 24, from pneumonia, aged 72.

Daniel McSwegan, San Diego, Calif.; Medical College of the Pacific, San Francisco, 1878; was found dead in his room, December 2, from heart disease, aged 75.

Abraham Glickstein, Brooklyn; New York University Medical College, New York City, 1897; was shot and killed by a woman, in his office, December 10.

Leander James Crooker, Jr., Augusta, Me.; Dartmouth Medical School, Hanover, N. H., 1891; died, November 27, from pneumonia, aged 52.

John Joseph McLaughlin, Philadelphia; Jefferson Medical College, Philadelphia, 1891; died suddenly, December 1, from heart disease, aged 58.

Bertha S. Hatfield Richardson ● Philadelphia; Women's Medical College of Pennsylvania, Philadelphia, 1893; died, November 19, aged 58.

John Paul Reynolds, Glenolden, Pa.; University of Pennsylvania, Philadelphia, 1878; died, November 26, from lobar pneumonia, aged 66.

William L. Lowder, McKinney, Ky.; Kentucky School of Medicine, Louisville, 1886; University of Louisville, 1887; died, November 24.

Samuel R. White, Laud, Ind.; Fort Wayne College of Medicine, Fort Wayne, 1886; died, November 28, from nephritis, aged 62.

James Robert Gant, Fort Smith, Ark.; St. Louis Medical College, St. Louis, 1891; died, November 12, after a long illness, aged 54.

Henry Eugene Wright, Sacramento, Calif.; University of California Medical School, San Francisco, 1894; died, November 24, aged 75.

John R. Purdum, Wetmore, Kan.; Lincoln Medical College, Lincoln, Neb., 1894; died in November, from heart disease, aged 57.

James Thomas Stone, Corona, N. M.; Tennessee Medical College, Knoxville, 1906; was shot and killed, November 18, aged 40.

Frederick W. McCrimmon ● Butte, Mont.; Western University, London, Ont., Canada, 1891; died, December 1, aged 50.

Elsha W. Holly, Hamlin, W. Va.; Kentucky School of Medicine, Louisville, 1882; died, November 30, aged 70.

Fanny Berlin, Boston; University of Berne, Switzerland, 1875; died, September 4, at Roxbury, Mass., aged 69.

George Sidney Smith, San Francisco; University of California, San Francisco, 1879; died, November 21.

Riley W. Drinnon, Luther, Tenn. (license, Tennessee, 1889); died recently, from acute dysentery, aged 60.

Reuben Thomas Greer, Malvina, Miss. (license, Mississippi, 1910); died, December 5, aged 43.

Robert Orr, Marfa, Texas (license, Texas, 1918); died, November 18, aged 56.

Correspondence

"THE PIRQUET SYSTEM OF NUTRITION AND ITS APPLICABILITY TO AMERICAN CONDITIONS"

To the Editor:—The valuable and suggestive article of Dr. Carter on the Pirquet system of feeding children (THE JOURNAL, Nov. 12, 1921, p. 1541), which has already provoked discussion, presents still another angle for consideration. I sympathize with the principle of examination of schoolchildren not only in the matter of nutrition but also in regard to other remediable defects; it seems doubtful, however, if the sweeping statement that more than 50 per cent. of 1,200 representative San Francisco schoolchildren are undernourished, even if it be "mild malnutrition," will advance the object sought. To the general reader its improbability would at once raise a question as to the reliability of the standards set by the system under discussion. It would seem unwise to transfer bodily the height-weight ratio based on Austrian children to American schools without careful inquiry as to whether racial differences may not require a different factor than ten in the ratio $\frac{10 \times \text{weight}}{\text{Sitting height}^3} = 100$. A cursory examination of Hastings' Manual for Physical Measurements (1902), giving figures based on more than 11,000 boys and girls chiefly from Omaha schools, which have been generally accepted as reliable norms, shows a widely different ratio between sitting height and weight.

The following list shows the sitting height and weight for the different ages as given by Hastings, together with the pelidisi taken from Pirquet's figures, as given by Carter (Table 1, p. 1542). The average figures of 94 for girls and 94.5 for boys are too high, as the weights include clothing (except shoes), while Carter's "pelidisi" are corrected to stripped weight, a correction which, he states, amounts to from 1.5 to 3 kg. (3⅓ to 6⅔ pounds):

	Boys			Girls		
Age	Sitting Height, Cm.	Weight, Kg.	Pelidisi	Sitting Height, Cm.	Weight, Kg.	Pelidisi
5	59.32	17.86	96	59.31	17.32	95
6	61.55	19.37	95	61.35	18.50	94
7	64.08	21.30	94	63.71	20.70	93
8	66.00	22.14	94	66.06	22.17	92
9	68.00	25.07	94	67.98	24.90	95
10	70.04	27.85	94	69.56	27.16	94
11	71.64	29.86	94	71.25	29.00	94
12	73.59	32.08	94	74.32	33.06	94
13	75.21	35.60	95	77.44	37.94	95
14	78.06	39.73	95	80.79	42.92	94
15	81.68	46.95	96	82.39	46.71	94
16	85.21	52.90	96	84.70	50.38	94
			94.5			94

It is obvious that the average American child is somewhat more slender than the Austrian child of the same height, an observation in accord with the observation of Peckham (1881), and that Pirquet's figures should be carefully revised to fit American conditions. If Hastings' figures are accepted as a standard, and they are in agreement with the earlier work of Bowditch and Porter, the pelidisi of about 94.25 would become normal, or 100 per cent., and the ratio would approximate $\frac{10.52 \times \text{weight}}{\text{Sitting height}^3} = 100$. If this is done, the corrected pelidisi of 94, representing Pirquet's lower limit of permissible variation, would correspond roughly with 89 in the published table, or even a lower figure if correction is made for the weight of clothing. Since Carter states that most of the cases constituting the 53 per cent. rated at 94 or less fall in the 94.93 and 92 column, it is clear that a correction of standards would exclude most of these from the class of malnutrition. A hasty and uncritical use of the standards of the Pirquet system will only tend to throw it into disrepute and retard the acceptance of its good features, a result sincerely to be regretted, as it appears to present a practical method of dealing with the general question of child nutrition which must, it seems to me, be handled by some such system, adapted to rapid and reasonably accurate application to large groups of children.

(Since the foregoing was written, a communication by Dr. Faber has appeared [THE JOURNAL, Dec. 3, 1921, p. 1837] covering, on the basis of more adequate data, many of the points here discussed. The results obtained from a direct check of Carter's examination of San Francisco children, showing that, according to the Wood tables, only one fifth are 7 per cent. underweight, and but one ninth 10 per cent., proves the essential accuracy of the necessarily less exact analysis here presented. It is to be hoped that the discussion aroused by Dr. Carter's paper will help to hasten the satisfactory revision of standards suited to American schoolchildren and lead to their more general use.)

FRANK W. WEYMOUTH, A.M.,
Stanford University, Calif.
Assistant Professor of Physiology, Leland Stanford Junior University School of Medicine

GROUP PRACTICE; DIAGNOSTIC AND PAY CLINICS

To the Editor:—The editorial comment (THE JOURNAL, Nov. 26, 1921, p. 1740), anent the pay clinic and the practitioner is opportune because, in the readjustments in medical practice that are impending, it is just that the latter be not disregarded. He is at present and will be for some time "the most valuable arm of the profession."

From the increase of matter pertaining to group practice, diagnostic clinics and organized medicine in THE JOURNAL, in the sessions of medical educational bodies and in the talk when physicians meet, it seems obvious that we are on the eve of a "big push" in the evolution of medical practice. The advantages of group practice are wont to be sung loudly by the initiated, often with accents so much distributed on the notes of personal interest and so little on the leitmotif of public service as to mar seriously the performance for those discriminating practitioners who happen to be in the audience. It is evident that we shall soon experience a controversy on the respective rights of practitioner, group, diagnostic clinic and pay clinic. In the anticipation of such a controversy it might be well to consider two of the forces at work which must inevitably change the practice of medicine, viz., costs, and present day medical education. During the last fifty years, medical science has grown so big that one man can master only a limited field. It often requires several men to apply the methods and knowledge necessary for the best diagnosis and treatment of a single patient. The machinery for this service is necessarily costly because both the education of the physician and the equipment necessary for the application of special knowledge are expensive; in other words, quality production comes high. Conservation of resources and energy demands that this machinery be kept running on a quantity production basis in order to insure reasonable returns to the physician on his mental and physical investment and a minimum cost to the patient for the kind of service that is due him. To bring proved and future benefits of medical science to the patient at endurable costs compels organization.

It is not reasonable to assume that a physician educated in the best schools of today will tolerate the present constrained conditions of small town and rural practice with its neces-

sarily merger facilities and with much of his valuable time spent as a chauffeur in traveling from patient to patient. The present state of affairs might possibly continue did not the public refuse to tolerate it. Throughout the West, practitioners in the country are being rapidly forced into loosely or closely organized groups in self defense, for the public is insisting on up-to-date service, is going where it can get such service, and is rapidly learning where quality service can be obtained at minimum costs.

In approaching the problem with its manifold personal grievances and adjustments, one must not forget that basic law of the healing, and may I add, preventing art, namely, that with every advance in medical science comes a proportionate limitation of the activities of those practicing that science. With the evolution of medical science and practice along present lines, the general practitioner as he exists today must eventually become obsolete. The cost of making a physician is rapidly becoming too great to allow him to squander his time in a desultory sort of practice which brings dissatisfaction to him and defective service to the patient. The care of the sick must be centralized for reasons of economy and service. Unavoidable call work can be carried out from the group center; fully 75 per cent. of the present call work could be eliminated to the untold advantage of the patient by centralized care of the sick. The advent of group practice in some form is the result of forces that cannot be stopped. Methods must be devised to protect the rights of the general practitioner (the specialists will look out for themselves) either by absorption into the group or by his working in such an association with the group as will react best to the interest of the patient, practitioner and group. The decision of the Board of Trustees of the American Medical Association to study the problem of group practice, diagnostic clinics and pay clinics is timely. It is safe to say that there is no greater social problem before medical men for solution than this inevitable transition from individual to organized practice which is now beginning.

A. D. DUNN, M.D., Omaha.

To the Editor:—The prominence which has been given to "group practice" in recent years has been associated with certain misconceptions on the part of the profession in general, many of which are so well brought out by Dr. Frank Billings' letter (THE JOURNAL, December 10) that I merely wish to emphasize them.

The points which, in my judgment, should be emphasized are these:

1. Most of the patients seen by the general practitioner are suffering from uncomplicated complaints which can be diagnosed by the intelligent use of the senses and the simple laboratory tests at the command of every physician.

2. Many practitioners, either from indolence or an exaggerated idea of the diagnostic value of the more complicated laboratory tests, fail to take a careful history and make a thorough physical examination of their patients, and hence fail to diagnose their diseases and apply successful treatment.

3. A certain proportion of the patients who consult the general practitioner are suffering from obscure diseases the diagnosis of which requires consideration from every possible angle, and this survey can best be made by an associated group of specialists.

4. There are many patients who are quite unable to meet the expense which must be incurred in making such an elaborate investigation, but who are able and anxious to pay something, as they are in no sense paupers and do not wish to be treated as such.

5. The so-called "pay clinic" is a perfectly logical development to meet the needs of this particular group of patients.

The whole situation is largely in the hands of the general practitioner. If he does careful work, the number of his patients who will need the services of a diagnostic group will be small; and if he is open minded he will doubtless benefit professionally from the careful investigation of these obscure cases. If he is the type of physician who resents the insinuation that the individual physician is deficient in diagnostic skill, he will need to follow a series of his patients to the necropsy table in order to develop sufficient humility to learn how to profit by his errors.

GEORGE BLUMER, M.D., New Haven, Conn.

COSMOPOLITAN CANCER RESEARCH SOCIETY

To the Editor:—My attention has been called to the fact that there appears in a recent issue of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION a statement that the Cosmopolitan Cancer Research Society, located at 847 Union Street, Brooklyn, has the cooperation of the Brooklyn Bureau of Charities. In reply may I say that the Bureau of Charities has no connection, understanding, or relationship whatever, with the Cosmopolitan Cancer Research Society, and has never sent a patient to them.

T. J. RILEY, Brooklyn.
Secretary, Brooklyn Bureau of Charities.

RADICAL ANTRUM OPERATIONS, AND DAMAGE THAT MAY BE DONE TO THE NERVE AND BLOOD SUPPLY OF TEETH

To the Editor:—Luc, in 1891, and Caldwell, working independently, in 1893, published their plan for opening the maxillary sinus over the canine fossa. In 1906, Denker published a more radical method in operating on the maxillary sinus.

These operations were devised before any importance was laid on the teeth as foci of systemic infection. Most of us have advocated and performed these operations and have counted them the operation of choice, not considering that damage may be done to the teeth. It has been our observation that a certain number of these patients return for months after the operation, complaining of a numbness of the incisors and canine teeth on the side on which operation was performed.

In searching for an explanation for this symptom I have found that the direct nerve and blood supply of the incisor and canine teeth by these operations is destroyed. Most surgeons think that the nerve and blood supply of the upper teeth lies in close proximity to the roots, as is the case in the lower jaw, whereas there is a marked difference. The maxillary division of the fifth nerve gives off three branches which supply the upper teeth, the terminal branch, the anterior superior alveolar nerve, being the one that supplies the incisors and canine teeth. This nerve descends in bony canals in the front wall of the maxillary sinus in such a way that, in the performance of either of these operations, a large section of this nerve is removed. The direct blood supply of these teeth follows the course of the nerve, and is likewise severed and removed. The natural sequence is that patients who have undergone operation are returning to us with dental symptoms, e. g., numbness and seeming elongation of the teeth. Roentgenograms of these show, in a certain proportion of cases, apical abscesses. One patient, a graduate nurse, who came under observation had had a radical operation on each antrum during her service in France. Within a year she had lost all of her upper incisors, which she attributes to the operation. The cosmetic damage, which is the least to be considered, is irreparable.

Dentists, in testing the vitality of these teeth, have found them devitalized as much as two and a half years after the operation. It may be possible that the plexus of nerves and the abundant supply of capillary circulation in the cancellous tissue of the alveolar process saves some teeth from complete destruction. However, I am keeping patients under constant observation on this point, and, from time to time, testing their vitality and making pictures. These facts are called to the attention of the profession in the hope that by the cooperation of dentists, oral surgeons, roentgenologists and rhinologists, we may determine whether any permanent damage is done to the teeth which may, at a later date, cause constitutional symptoms.

J. L. MYERS, M.D., Kansas City, Mo.

HOSPITAL FOR SPEECH DISORDERS

To the Editor:—In THE JOURNAL, November 26, Dr. J. S. Greene, in an article entitled "A Departure in Hospitals: The National Hospital for Speech Disorders," describes the deplorable lack of interest shown by the medical profession in the important subject of defective speech. There is no doubt that persons with speech defects are definitely handicapped both industrially and socially, and his attempt to stimulate interest in their scientific treatment is praiseworthy. However, the statement that his institution is the first in America to cope with this problem is misleading. In January, 1920, a speech clinic was organized in the U. S. Public Health Service Hospital No. 37, Waukesha, Wis., for the special treatment of these cases in ex-service men. Dr. Smiley Blanton of the University of Wisconsin, acting as attending specialist in speech defects, organized the clinic and has since continued actively to supervise its work. At present all of the speech cases of the hospital are under the care of one neuropsychiatrist who has made a special study of speech defects. Working in conjunction with him are two psychologists, experienced in speech reeducation. The cases are treated very intensively by analytic and reeducative methods, both by the psychiatrist and the psychologists. Class work has been discarded, as it was found ineffectual, and the work is now entirely individual.

In addition, the patients receive, when indicated, physiotherapy, electrotherapy and occupational therapy, and may pursue studies in prevocational education. There are two dental officers on full time, a roentgenologist and consultants in ophthalmology, otology, rhinology and laryngology; in internal medicine; in surgery; in urology, and in orthopedics. There is, in addition, an efficient social service department which promptly establishes contact with the patient's family and keeps in touch with him after discharge.

The speech work in this hospital takes into account the educational, as well as the physical, needs of the individual, and the facilities of the clinic are open to any ex-service man suffering from a speech disorder.

LAWRENCE KOLB, M.D., Waukesha, Wis.
Medical Officer in Charge, U. S. P. H. S. Hospital No. 37.

"A NEW METHOD OF TREATMENT FOR VARICOSE ULCERS OF THE LEG"

To the Editor:—Referring to the description of "A New Method of Treatment for Varicose Ulcers of the Leg" (THE JOURNAL, Dec. 10, 1921, p. 1890), verily "the old ones are the best." This method was old during the swaddling clothes period of my internship.

JOHN F. KUHN, M.D., Oklahoma City.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

VON PIRQUET TEST IN TUBERCULOSIS

To the Editor:—Is the von Pirquet test a reliable and conclusive proof of tuberculosis? W. S. NORMAN, M.D., Hamburg, Ark.

ANSWER.—The von Pirquet cutaneous test is regarded as giving positive evidence if tuberculosis is present. Exceptions are cases which are overwhelmed by the infection in the late stages of the disease, as in generalized miliary tuberculosis and tuberculous meningitis; also during the height of some infections, as measles, pneumonia, scarlet fever, typhoid fever and erysipelas. In the presence of a negative reaction, if there is a strong suspicion that tuberculosis exists, the test should be repeated two or three times, as the patient becomes more sensitive to the reaction when the test is repeated. A proper interpretation of a positive reaction is of great importance, because its clinical significance is to a large extent dependent on the age of the patient. In infants under 1 year it may be considered as signifying an active process. During the second year of life, while indicating the presence of tuberculosis, the process may have advanced to the stage of healing. In older children and adults, while signifying the presence of tuberculosis, its importance must necessarily be determined by the findings on physical examination, and on laboratory and roentgenographic studies. In older children and adults a positive reaction should therefore not be regarded as ground for alarm unless active lesions can be demonstrated, as a healed focus in an individual with good reaction to the disease usually gives a strongly positive finding. A negative reaction when the test has been repeated indicates one of the following: an absence of infection, a healed infection, little or no antibody due to a healed infection, an overwhelming of the organism by the disease, too short an interval after infection to permit the building of antibody, or a suppression as seen during the course of some of the acute infections. In suspicious cases in the presence of a negative von Pirquet reaction, an intradermal (Mantoux) test should be made. This consists of the instillation between the layers of the epidermis of 0.05 mg. of old tuberculin, diluted with physiologic sodium chlorid solution to 0.12 c.c. (2 minims). This test is more sensitive than the von Pirquet.

WHITFIELD'S OINTMENT

To the Editor:—In THE JOURNAL, October 22, is an article on epidermophytosis in which reference is made to Whitfield's ointment. Please tell me the composition of this ointment.

M. A. STERN, M.D., Sioux Falls, S. D.

ANSWER.—Whitfield's ointment is composed of benzoic acid and salicylic acid incorporated in a petrolatum base. According to Sutton (Diseases of the Skin, Edition 4, p. 1018) it consists of:

	Gm.	
Salicylic acid	1	gr. xv
Benzoic acid	2	gr. xxx
Petrolatum	30	℥ i

Goodman (Epidermophytosis Pedum et Manuum, *Arch. Dermat. & Syph.* 3:652 [May] 1921) gives this formula for Whitfield's ointment:

	Gm. or C.c.	
Salicylic acid	1	gr. xv
Benzoic acid	1.6	gr. xxv
Petrolatum	8	ʒ ii
Coconut oil	30	℥ i

HARRISON NARCOTIC LAW REGULATIONS FOR RECORDING MORPHIN GIVEN HYPODERMICALLY

To the Editor:—Please inform me whether a physician is required to keep a record of the morphin which he administers hypodermically, when called to attend cases of gallstone colic, etc. There seems to be a difference of opinion in regard to this. Kindly omit my name.

H. H. D.

ANSWER.—The regulations under the Harrison Narcotic Law require physicians to keep a record of morphin administered hypodermically at the physician's office, but this is not required at the bedside or when the physician is away from his office.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALABAMA: Montgomery, Jan. 10. Chairman, Dr. Samuel W. Welch, Montgomery.

ARIZONA: Phoenix, Jan. 3-4. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.

COLORADO: Denver, Jan. 3. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

DISTRICT OF COLUMBIA: Washington, Jan. 10. Sec., Dr. Edgar P. Copeland, 1315 Rhode Island Ave., Washington.

HAWAII: Honolulu, Jan. 9. Sec., Dr. G. C. Milnor, 401 Beretania St., Honolulu.

ILLINOIS: Chicago, Jan. 10-12. Director, Mr. W. H. H. Miller, Springfield.

INDIANA: Indianapolis, Jan. 10. Sec., Dr. Wm. T. Gott, Crawfordsville.

MINNESOTA: Minneapolis, Jan. 3-5. Sec., Dr. Thomas S. McDavitt, 339 Lowry Bldg., St. Paul.

NEW MEXICO: Santa Fe, Jan. 9-10. Sec., Dr. R. E. McBride, Las Cruces.

NEW YORK: Albany, Buffalo, Syracuse and New York City, Jan. 23-26. Asst., Professional Examinations, Mr. Herbert J. Hamilton, State Education Bldg., Albany.

NORTH DAKOTA: Grand Forks, Jan. 3. Sec., G. M. Williamson, 860 Belmont Ave., Grand Forks.

OHIO: Columbus, Jan. 3. Sec., Dr. H. M. Platter, Hartman Hotel Bldg., Columbus.

OKLAHOMA: Oklahoma City, Jan. 10-11. Sec., Dr. J. M. Byrum, Shawnee.

OREGON: Portland, Jan. 3. Sec., Dr. U. C. Coe, Stevens Bldg., Portland.

PENNSYLVANIA: Philadelphia, Jan. 3-9. Sec., Mr. Thomas E. Finegan, State Capitol, Harrisburg.

PORTO RICO: San Juan, Jan. 3. Sec., Dr. M. Quevedo Baez, Box 804, San Juan.

RHODE ISLAND: Providence, Jan. 5-6. Sec., Dr. Byron U. Richards, State House, Providence.

SOUTH DAKOTA: Pierre, Jan. 17. Director, Dr. H. R. Kenaston, Bonsteel.

UTAH: Salt Lake City, Jan. 3. Director, Mr. J. T. Hammond, Capitol Bldg., Salt Lake City.

WASHINGTON: Olympia, Jan. 10. Director, Mr. Fred J. Dibble, Olympia.

WEST VIRGINIA: Charleston, Jan. 10. Sec., Dr. W. T. Henshaw, Charleston.

WISCONSIN: Madison, Jan. 10-12. Sec., Dr. John M. Dodd, 220 E. Second St., Ashland.

Maryland June-July Examination

Dr. J. McP. Scott, secretary, Maryland State Board of Medical Examiners, reports the written examination held at Baltimore, June 28 to July 1, 1921. The examination covered 9 subjects and included 90 questions. An average of 75 per cent. was required to pass. Of the 111 candidates examined, 107 passed and 4 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
George Washington University		(1921)	92
Rush Medical College		(1915)	89
Johns Hopkins University		(1918) 84, 92, (1919) 84, 99, (1920) 79, 79, 80, 87, 90, (1921) 78, 79, 80, 82, 83, 83, 83, 84, 85, 85, 85, 85, 86, 86, 86, 87, 87, 87, 87, 87, 89, 89, 89, 89, 89, 90, 90, 90, 90, 90, 90, 90, 91, 92, 92, 93, 93, 94	
University of Maryland		(1917) 84, (1919) (1920) 75, 87, (1921) 77, 78, 79, 79, 80, 81, 82, 83, 83, 83, 83, 83, 83, 83, 84, 84, 84, 84, 84, 85, 85, 85, 86, 86, 86, 86, 87, 87, 87, 88, 88, 88, 88, 89, 89, 89, 90, 90, 90, 90, 91, 91, 91, 91, 91, 92, 93, 94	77,
Temple University		(1917)	76
Meharry Medical College		(1921)	89

College	FAILED	Year Grad.	Number Failed
Howard University		(1920)	1
Jefferson Medical College		(1921)	1
University of Palermo		(1915)*	1
University of Zurich		(1917)*	1

Dr. J. McP. Scott also reports that 31 candidates were licensed by reciprocity, and 1 candidate was licensed by endorsement of credentials, from Jan. 15, 1921, to Sept. 5, 1921. The following colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Alabama		(1912)	Alabama
Georgetown University		(1903)	Dist. Colum.
George Washington University		(1908), (1916)	Dist. Colum.
Atlanta Medical College		(1914)	Georgia
Loyola University		(1917)	Illinois
Keokuk Medical College		(1908)	Kansas
Kentucky School of Medicine		(1907)	W. Virginia
Kentucky University Medical Department		(1905)	Indiana
University of Louisville		(1920)	Kentucky
College of Physicians and Surgeons, Baltimore		(1909)	W. Virginia
Johns Hopkins University		(1919)	Virginia
Maryland Medical College		(1911) Pennsylvania, (1913)	W. Virginia
University of Maryland		(1889) New York, (1890) (1920) North Carolina	Maryland
St. Louis University		(1908)	Illinois
Washington University		(1912)	Missouri
Columbia University		(1915)	New York
Leonard Medical School		(1911) Tennessee, (1912)	Virginia
Eclectic Medical College, Cincinnati		(1915)	Ohio
Jefferson Medical College		(1919)	Delaware
University of Pennsylvania		(1898)	Delaware
Medical College of the State of South Carolina		(1907)	S. Carolina
Meharry Medical College		(1911), (1916) (1917) North Carolina, (1920) Tennessee	Georgia
University of Vermont		(1913)	Vermont

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
University of Maryland		(1914)	Nat'l Bd. Med. Ex.

* Graduation not verified.

Kansas June Examination

Dr. Albert S. Ross, secretary, Kansas State Board of Medical Registration and Examination, reports the written and practical examination held at Kansas City, June 23, 1921. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 40 candidates examined, 39 passed and 1 failed. Sixteen candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Northwestern University		(1921)	80
Rush Medical College		(1921)	86
University of Kansas School of Medicine		(1921) 79, 80, 80, 81, 81, 81, 81,* 82, 82, 82, 82,* 83, 83, 83, 83, 84, 84, 84, 84,* 85, 85, 85, 85, 86, 87, 87, 88, 89	76.
St. Louis University School of Medicine		(1921)	85, 86
Washington University		(1920) 82, (1921)	78
Western Reserve University		(1921)	86
Jefferson Medical College		(1920)	87
University of Texas		(1917)	82

College	FAILED	Year Grad.	Per Cent.
Meharry Medical College		(1894)	63

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
American College of Medicine and Surgery		(1905)	Illinois
Rush Medical College		(1901) Missouri, (1919)	Illinois
Tulane University		(1907)	Tennessee
Eclectic Medical University, Kansas City, Mo.		(1904)	Missouri
Ensworth Medical College		(1905)	Missouri
St. Louis College of Physicians and Surgeons		(1919)	Tennessee
St. Louis University School of Medicine		(1905), (1912), (1921)	Missouri
University Medical College of Kansas City		(1898)	Oklahoma
Washington University		(1918)	Missouri
Medico-Chirurgical College of Philadelphia		(1909)	Penna.
Meharry Medical College		(1916)	Tennessee
Vanderbilt University		(1919)	Tennessee
Marquette University		(1913)	Wisconsin

* An official communication from the University of Kansas School of Medicine states that these candidates have not graduated.

Idaho October Examination

Mr. Paul Davis, director, Department of Law Enforcement, reports the written examination held at Boise, Oct. 4, 1921. The examination covered 11 subjects and included 120 questions. An average of 75 per cent. was required to pass. Eight candidates were examined, all of whom passed. Nine candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
George Washington University		(1907)	77.2
Loyola University		(1917)	82.3
University of Illinois		(1919)	81.9
University of Louisville		(1921)	85.2
Harvard University		(1896)	83.8
Columbia University		(1920)	82.1
University of Oklahoma		(1918)	75
University of Pennsylvania		(1920)	83.4

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Chicago		(1903)	Montana
Rush Medical College		(1919)	Utah
Woman's Medical School of Northwestern Univ.		(1899)	Oregon
University of Kansas		(1908)	Washington
Baltimore Medical College		(1906)	Montana
Johns Hopkins University		(1905)	California
Tufts College Medical School		(1901)	Montana
University of Michigan Medical School		(1912)	Montana
John A. Creighton Medical College		(1920)	Utah

Book Notices

OPERATIVE SURGERY FOR STUDENTS AND PRACTITIONERS By John J. McGrath, M.D., F.A.C.S., Professor of Surgery, Fordham University. Sixth edition. Cloth. Price, $8 net. Pp. 863, with 369 illustrations. Philadelphia: F. A. Davis Company, 1921.

The subject matter is divided into ten parts dealing with: general considerations; head and face; neck and tongue; thorax; abdomen and back; rectum; hernia, spermatic cord, testes, etc.; urinary system; upper extremity, and lower extremity. The facts presented are concisely stated, and the material is well worked up. A striking feature is the detailed description of surgical anatomy of the region given at the beginning of each of the chapters. In general, this is to be commended; but in the part dealing with the thorax, thirty-two pages are given up to a consideration of the surgical anatomy, whereas only twenty-one pages are left for presenting the operative surgery of the thorax, including the chest wall and the breast. Operations on the breast, excluding amputation of the breast, are compressed into one and one-half pages; the entire subject of amputation of the breast is compressed into five and one-half pages, and only the Halsted-Myer operation is described; operations on the heart cover eight pages; surgery of the pleura including pleurectomy cover six and one-half pages; and then one is most of all surprised to find that surgery of the lung is not taken up at all.

Besides this lack of proportion and sacrifice of presentation of operative technic resulting from the amount of space given over to surgical anatomy, one is impressed by the number of entirely obsolete methods and operations described and recommended, and a corresponding absence of presentation of much that is new and accepted as standard today. For example, in considering transfusion, direct transfusion is gone into at length, and its performance by the suture method with the Crile cannula, and with Brewer tubes described in detail. Surely today these are only of historical interest. Then the Unger method is taken up, and finally, the sodium citrate method. The latter is not adequately described, nor is it entirely accurately outlined. This method, together with the method using a Percy or similar tube, are unquestionably the most used methods today, and yet the latter method is not even mentioned.

Similarly, in considering the treatment of tic douloureux, the author describes the extirpation of the gasserian ganglion in detail, giving the method of Hartley-Krause, the method of Cushing, and the entirely obsolete method of Rose-Andrews. The Spiller-Frazier operation, on the other hand, which consists merely in the section of the sensory root, and is today unquestionably the operation of choice as a substitution for excision of the gasserian ganglion, is not even mentioned. Later, the author describes division of the second and third branches of the trifacial nerve at the base of the skull, and recommends dividing them at their foramina of exit or twisting them free. Instead of describing these methods in detail, he might well quote Cushing and state that deep extracranial injections of alcohol into the maxillary and mandibular nerve trunks near their foramina of exit from the skull have completely superseded peripheral neurectomies. In discussing the operations for varicose veins of the leg, he gives a detailed description of the entirely obsolete Schede operation, with two large illustrations (the only ones in connection with operations for varicose veins) showing how the incision is made circularly completely around the leg—a procedure that should be condemned most emphatically, as long ago it was found to be followed by constriction and consequent circulatory disturbance below. In amputation of the thigh, the circular flap method is considered the method of choice and is described in detail. Flap operations are merely referred to. No mention is made of methods to prevent neuroma formation, nor is any mention made of the Bunge method of aperiosteal treatment of the femoral stump, two factors of great value in obtaining painless and good end-bearing stumps. Surely this is no adequate teaching of thigh amputation.

All in all, while the book contains much that is valuable for a beginner in surgery, it cannot be regarded as a good text-book for students, since much that is antiquated is incorporated, and many procedures that are accepted as standard are not described or even referred to. For the surgeon of experience, the book has little to recommend it aside from the portions on surgical anatomy, which are very good.

UEBER DIE ENTWICKLUNG UND DEN AUSBAU DER SUPRASYMPHYSÄREN SCHNITTENTBINDUNG AN DER UNIVERSITÄTS-FRAUENKLINIK TÜBINGEN. Von Dr. Emil Vogt, Oberarzt der Universitäts-Frauenklinik. Paper. Price, 36 marks. Pp. 113, with 8 illustrations. Berlin: S. Karger, 1921.

Vogt here discusses the development of the suprapubic cervical cesarean section in the Tübingen clinic. He has carefully described the anatomy and the surgical technic, and has also compared this with the technic of other extraperitoneal and transperitoneal cesarean sections. The operation is usually done under 5 per cent. procain solution lumbosacral anesthesia, with the patient in the Trendelenburg position. He points out that sterilization can be easily carried out at the end of the operation, if desired, without enlarging the incision. The greatest advantage claimed over the old classic operation is that this can be used in cases in which infection is suspected on account of numerous and careless vaginal examinations, or in which the membranes have been ruptured for a long time in the course of a complete test of labor. Under these conditions he claims that the classical operation cannot safely be done. However, cases of proved infection, he admits, should be otherwise delivered either by Porro cesarean section or by craniotomy. Among other indications he believes that placenta praevia is best handled by this operation, as opposed to the use of bags or Braxton Hicks version. The special reasons advanced are the better fetal prognosis and the ability to combat postpartum hemorrhage under the guidance of the eye, ligating the bleeding points if necessary. Less common indications for which the operation is advised are prolapse of the cord, carcinoma of the cervix, preceding extensive perineal repair, repaired fistulas, infections of the birth canal, and neglected transverse presentations. The results of various authors operating by this method are compared with those operating by different methods and, in the author's opinion, are found to be superior. From a study of the figures it is difficult to see the proof of the superiority of the operation over the extraperitoneal operation of Kustner, for example, who reports a series of 110 unselected cases with no primary mortality from infection, although half of the patients were either known or suspected to be infected at the time of operation.

LEHRBUCH DER LUNGENKRANKHEITEN. Von Dr. Adolf Bacmeister, a. o. Professor für innere Medizin in der Universität Freiburg i. Br. Paper. Price, 126 marks. Pp. 339, with 106 illustrations. Leipzig: Georg Thieme, 1921.

Those who know German will enjoy this book. The style is clear, crisp and simple. The author goes thoroughly into pathology and physical diagnosis. The chapters on bronchitis and "bronchiolitis" are most interesting; syphilis of the lung, however, is left somewhat in a haze of indefiniteness. One might spend much time on the chapter on pleurisy, with the certainty of being well repaid. While the author discusses the bacteriology of pneumonia thoroughly, he offers nothing new and makes no mention of the various types of *B. pneumoniae*. Nevertheless, he does discriminate between the various organisms that may produce pneumonia. While the therapy recommended in the book, is, as a rule, clean cut and practical, so many drugs are mentioned that the author could not be suspected of therapeutic nihilism. The use of the roentgen ray is considered secondary to physical diagnosis.

WHAT TO DO IN CASES OF POISONING. By William Murrell, M.D., F.R.C.P. Twelfth edition, revised by P. Hamill, M.D., D.Sc., F.R.C.P., Lecturer on Pharmacology and Therapeutics, St. Bartholomew's Hospital. Cloth. Price, $1.25. Pp. 273. New York: Paul B. Hoeber, 1921.

This pocket manual is now in the twelfth edition, the present revision being by Dr. P. Hamill. The subjects are arranged in alphabetical order. The advice is based on personal experience and on the literature. There are brief discussions of multiple antidotes, legal aspects and the fees to be charged in handling such cases. It is a type of book which may lie for weeks or months on the physician's desk without consultation, but which is invaluable when needed.

Medicolegal

Court Refuses to Order a Blood Test

(Hoyt v. Brewster, Gordon & Co., Inc. (N. Y.), 189 N. Y. Supp. 907)

The Supreme Court of New York, Special Term, Monroe County, says that this was an action for personal injuries, in which the defendant asked for an examination before trial and a physical examination, including a blood test. Under Section 873 of the New York Code of Civil Procedure, the defendant was entitled to the examination before trial as to the plaintiff's alleged injuries and physical condition, and also to a further physical examination, but not to the making of a blood test. The right to a physical examination is purely statutory, and should not be extended by construction beyond the intention of the legislature when the statute was enacted. A blood test invokes a puncturing of the human body; and, while it may not be attended with any appreciable pain or reasonable apprehension of danger to health, it cannot be said that such a test was within the contemplation of the legislature when the statute relating to physical examinations was enacted. If the examination is to be extended to something not ordinarily understood by that term, it should be left to the legislature to so provide.

Instruction of Patients and Contributory Negligence—Inexcusable Mistakes

(Everts v. Worrell (Utah), 197 Pac. R. 1043)

The Supreme Court of Utah says that when the plaintiff was between 17 and 18 years of age he was afflicted with acne, and arranged with the defendant for treatment. The treatment consisted of two injections of neo-arsphenamin. Paralysis of the lower portion of the plaintiff's body followed. The plaintiff sued for damages. The defendant alleged contributory negligence. She called the case a typical one of acneiform syphilid. The trial resulted in a judgment for the defendant, which is reversed, with directions to grant the plaintiff a new trial at defendant's cost, on account of errors in the instructions given the jury.

It is no doubt a wholesome law, the supreme court says, that a patient must obey the instructions of his physician, and if he fails to do so must suffer the consequences. Where the patient, however, is not informed of his actual condition and the dangers to which he may become exposed, and is left in ignorance respecting that matter, and by reason of such ignorance falls into error, or, figuratively speaking, walks from a precipice in the darkness of night, he should be judged only in the light of what he knew, or, in view of the facts and circumstances, should have known. The law charges him constantly with what he ought to have known in view of all the circumstances. But no hard or fast rule can be laid down respecting the form or character of the instructions a physician should give in all cases. In a case like the one at bar, in which the experts differ respecting the nature and character of the disease, and the patient may be wholly ignorant of the danger to which he is exposed, and his physician does know, before the physician can charge the patient with contributory negligence barring a recovery he should see that he fully advised the patient respecting his condition and the dangers to which he might be exposed, and how to avoid them. Moreover, the circumstances here were such that the jury should have been specifically told just what the duties of the defendant were in a case of this character, and that in determining whether the plaintiff was guilty of contributory negligence barring a recovery the jury should take into consideration his experience, his knowledge or want of knowledge, and the character of the disease, and all the facts and circumstances in evidence which would throw light on his negligence, if there was any.

In a case like the one at bar, the patient and his physician do not stand on an equality, and the patient is usually uninformed respecting the character of his disease, and thus necessarily must be directed what to do by his physician in order to avoid ill consequences, if any such may follow. If, therefore, the physician relies on the contributory negligence of his patient to defeat a recovery in case of malpractice, the patient should be advised respecting the consequences of any act or omission on his part, and not be left in the dark with respect thereto. Otherwise he cannot act intelligently in the premises. The court, therefore, should instruct the jury that in determining the question of contributory negligence they should take into consideration all the facts and circumstances in evidence respecting the patient's age, experience or want thereof, and his knowledge or want of knowledge respecting his disease and condition, and the instructions that he received, if any, from his physician. This was not done in this case, and, in view of the peculiar circumstances, the supreme court has been forced to the conclusion that the plaintiff was prejudiced in a substantial right, and did not have that full, fair and impartial trial which our laws guarantee to every suitor.

A physician and surgeon is not excusable for every mistake, but only for his honest mistakes and when founded on some reasonable doubt. If he makes a mistake by reason of undue inadvertence, or for lack of diligence or attention, however carefully and skilfully he may have diagnosed and treated the case, he, nevertheless, cannot be excused for such a mistake if it results in injury to his patient.

Requires Submission to Operations Despite Danger

(Strong v. Sonken-Galamba Iron & Metal Co. (Kan.), 198 Pac. R. 182)

The Supreme Court of Kansas says that the principal question presented was, Did the court have power to reduce the amount of compensation that should be paid to the plaintiff if he refused to submit to an operation? He had been injured while in the employment of the defendant, his injury being a recurrence of a right inguinal hernia, for which he sought compensation under the workmen's compensation law of Kansas. The defendant offered him a surgical operation, by a surgeon of his own choosing, the defendant to defray all the expenses thereof. The plaintiff gave as reason for refusing to have the operation performed that he thought he was too old, being 54 years of age; that he did not think that he could stand the operation in the condition in which he was, his ribs having been pulled away from his breastbone, and his spine being numb; and because there was a chance of a man not living through it. The lower court held that the plaintiff should endeavor to effect a cure of his condition by submitting to the operation as tendered by the defendant, and, in case of his failure to do so, the compensation to be paid to him should cease at the end of twenty-five weeks. In affirming the judgment rendered on that basis, the supreme court holds that the unreasonable refusal of an injured employee to permit a surgical operation where the danger to life from the operation would be very small, and the probabilities of a permanent cure very large, justifies a court in refusing compensation under the workmen's compensation law and after the trial. The unreasonableness of the refusal of an injured employee, who is seeking to recover compensation under the workmen's compensation law, to permit an operation to be performed, is a question of fact to be determined from the evidence. Why should the plaintiff permit an operation to be performed? It might not result in his improvement; it would be painful; it was remotely possible that it might result in his death. Danger to life is everywhere, at all times; it cannot be escaped by any one. The most trifling accident to the person or the smallest scratch on the skin may result in death. The locomotive engineer and his fireman when they climb into the cab of their engine and start on their trip constantly face dangers that may, and often do, result in their death. The miner who goes into the earth to take therefrom ore or mineral faces death every day. These men are not deterred by danger, although they know that injury or death is liable to come at any time. They go because that is their field of labor, and it is their duty to go. The plaintiff was injured. The injury could be remedied, and he could be restored to his former condition. It was his duty to do whatever was necessary to restore him. If he refused to perform that duty, he should not ask the state or any person to assist him in

that refusal. He could not be compelled to undergo an operation, but he could be told that if he refused he should not receive compensation for that which he voluntarily continued.

Society Proceedings

COMING MEETINGS

American Association of Anatomists, New Haven, Conn., Dec. 28-30.
American Physiological Society, New Haven, Conn., Dec. 28-30.
Am. Soc. for Pharm. and Exper. Therap., New Haven, Conn., Dec. 28-30.
Society of American Bacteriologists, Philadelphia, Dec. 27-29.

SOUTHERN MEDICAL ASSOCIATION

Fifteenth Annual Meeting, held at Hot Springs, Ark., Nov. 14-17, 1921

(Concluded from page 1996)

Glossopyrosis

DR. K. HEBERDEN BEALL, Fort Worth, Texas: In four cases, constant burning of the tongue was the sole symptom. Physical examination was negative. In each case there was an absence from the dietary of meat and whole milk. Two patients were lost sight of; the other two were relieved of the burning of the tongue by the addition of meat and whole milk to the diet.

Significance and Diagnosis of Cardiac Anginal Pains

DR. D. D. PAULUS, Oklahoma City: Pain, often of a more or less paroxysmal character, is a frequent finding in heart disease independent of angina pectoris. These pains are really protests from an overworked, inflamed or degenerated heart, and may arise from the heart as well as from the aorta. Whatever the source, pain over the precordial area demands a thorough investigation of cardiac function, etc., unless the condition present is obvious.

Treatment of Cancer of Uterus by Radium

DR. LOUIS FRANK, Louisville, Ky.: Cancer of the uterine body treated by total oblation of tubes, ovaries and uterus yields curative results which we cannot hope to surpass by any other form of treatment. All borderline cases should be treated with radium. Late cases may be improved and palliated by radium as by no other means at our command. If the five year period of curability is to be accepted as indicating a cure, then the results of radium treatment surpass by far those obtained by the profession at large in the treatment of cancer of the cervix by surgical means.

Retrodisplacement of the Uterus, with Suggesions Regarding Proper Treatment

DR. W. T. BLACK, Memphis, Tenn.: Congenital retrodisplacement rarely requires treatment. Simple displacement, following a recent pregnancy, can often be corrected by the wearing of a properly placed pessary. One should select with judgment the type of operation best suited to be used in the various conditions encountered in retrodisplacements. It is an unpardonable mistake to select the same technic for all cases. Many needless operations for this condition are being performed.

Surgery of Gallbladder

DR. W. H. GOODWIN, Charlottesville, Va.: The operative mortality in our hospital from cholecystostomy was 5 per cent., and in cholecystectomy 3.3 per cent. Of the patients traced who had cholecystostomy done, 71.5 per cent. were cured; 23 per cent. were improved and 5.2 per cent. unimproved. Of those who had cholecystectomy done, 88 per cent. were cured, 9 per cent. were improved, and 3 per cent. were unimproved. No one should dogmatically say that cholecystectomy ought to be the operation of choice in all gallbladder disease; but on account of the better immediate and final results and the shorter and more comfortable convalescence of cholecystectomy, that operation should be done in the vast majority of cases. Cholecystostomy certainly has a field of usefulness in the very ill patient with infected gallbladder complicated by jaundice. In the very ill patient with stone in the common duct and deep jaundice, cholecystostomy may be relied on to tide the patient over the emergency, and later the stone can be removed with much less risk to the patient.

Acute Intestinal Obstruction

DR. GEORGE A. HENDON, Louisville, Ky.: The percentage of mortality is in direct proportion to the number of hours that elapse between the onset of the symptoms and the performance of the operation. In cases obstructed one hour there is shown 1 per cent. mortality; two hours, 2 per cent.; three hours, 3 per cent., and so on. In searching for the obstructed bowel, not more than five minutes should be employed. The obstructed loop of intestine is almost invariably found in the pelvis. A condition in which a bowel is strangulated and becomes gangrenous outside the abdominal cavity is not so frequently fatal as a condition involving the same amount of intestine which has become gangrenous within the cavity. Hence the relatively low mortality rate of strangulated hernia. In every case morphin hypodermically, sufficient to control pain, should be administered. Under no circumstances should any effort at purgation be resorted to. All attempts in this direction should be limited to the use of a simple enema.

Exstrophy of Bladder

DR. W. W. GRANT, Denver: The extraperitoneal implantation of Bergenhem-Peters, modified by transplanting ureters and trigon intact and through one anterior rectal incision, is less dangerous and more quickly done and is the operation of choice. The two-stage operation is neither necessary nor desirable. In advanced malignant and tuberculous disease of the bladder, the Coffey-Mayo operation and technic is the operation of choice. Urinary control is essential to any successful operation on the bladder.

Roentgen Rays in Diagnosis of Pulmonary Tuberculosis

DR. JOHN D. MACRAE, Asheville, N. C.: Stereoscopic lung plates are the most valuable method of diagnosis. All other methods are secondary in value. Interpretation of the roentgenograms should be made independent of clinical findings in the case. Necropsies on tuberculous subjects will aid in correlating densities in the roentgenogram with actual lesions in the lungs.

Value of Blood Chemistry to the Surgeon

DR. WILIAM H. BAILEY, Oklahoma City: The glucose tolerance test is of considerable assistance in establishing the diagnosis of cancer, especially of gastro-intestinal carcinoma, when the other conditions that give a similar blood sugar curve have been eliminated. Ether should not be the anesthetic of choice when the patient is found to show an acidosis by a low carbon dioxid combining power of his blood plasma. In gastro-intestinal cases showing a starvation acidosis, a two-stage operation may well be considered. A poorly functioning organ is to be feared more as a factor bearing on the operative risk of the patient than a diseased organ that is doing its work satisfactorily. Many deficient metabolic processes of the body may ultimately affect the functional ability of the kidneys. No one test for kidney function should be used to the exclusion of all others. Blood chemical tests, like all other laboratory procedures, must be considered only as additional clinical evidence, and their value determined by weighing them with all the data available. Satisfactory results cannot be expected from these tests if their performance is left to some one not thoroughly conversant with the chemical procedures involved. The estimation of blood creatinin is the most valuable prognostic sign we have in cases of renal deficiency. Blood chemistry is of special value in cases of hypertrophied prostate and other mechanical chronic obstructions to the outflow of urine.

Gastroptosis

DRS. SEALE HARRIS and J. P. CHAPMAN, Birmingham, Ala.: Of 500 patients studied by the roentgen ray, in 55.6 per cent. the lower border of the stomach was more than 2 inches (5 cm.) below the umbilicus. The operation of fixation of the stomach for gastroptosis is irrational, meddlesome sur-

gery. The operation does not permanently elevate the stomach, and many cases have been reported in which the patient was in worse condition after the operation than before.

Lamblia Intestinalis Infestation and Its Treatment

DR. SIDNEY K. SIMON, New Orleans: The eradication of giardia infection, once it has become firmly intrenched in the intestinal tract, has proved in the past a signally unsuccessful undertaking. I have used arsphenamin in six cases. In one case the drug was introduced directly into the intestinal tract through the duodenal tube, while in the other cases the intravenous route was selected. In each instance there was a prompt disappearance of the cysts from the stools, and no further trace of the infection has been made out.

Hepatic Extract (Soluble) as a Remedial Agent

DR. A. L. LEVIN, New Orleans: Hepatic extract is a useful agent to stimulate liver function unless it is beyond repair. It must be used for a long period until definite good results have been obtained. It is of value in conjunction with nonsurgical drainage, but has no power to influence pancreatic pathology. It can be used as a diagnostic agent to determine the hepatic origin of the trouble. Liver enlargements due to biliary stasis can be diminished in size in a reasonably short period, if used in conjunction with nonsurgical drainage. This includes acute catarrhal jaundice. The injection does not give rise to any unpleasant reactions, local or systemic.

Diphtheria and Hemolytic Streptococcus Carriers

DR. GEORGE E. ADKINS, Jackson, Miss.: One of the most essential things in reducing the prevalence of diphtheria over the country would be the removal of tonsils and adenoids or the clearing away of points of chronic focal infection in the upper respiratory tract of all diphtheria carriers (or rather all those cases that give a positive history) regardless of an examination made by swabs.

Treatment of Lung Abscess

DR. C. O. GIESE, Colorado Springs, Colo.: From 6 to 33 per cent. of all cases of lung abscess recover spontaneously. If spontaneous recovery does not occur within eight weeks, some type of operative procedure should be considered. The operation to be advised depends on the location of the suppurative process and the pathologic condition.

Tolerance of Children for Digitalis

DRS. HUGH MCCULLOCH and WAYNE A. RUPE, St. Louis: The method of administering massive doses of digitalis to children should be the same in detail as for adults. The use of massive doses to children is entirely practical, and under proper supervision possesses no source of danger. That amount of digitalis necessary to produce clinical improvement coincides with the amount necessary to produce vomiting and a fall in heart rate. These two phenomena may be taken as criteria that an optimal therapeutic effect has been obtained. Children with heart disease require an amount of digitalis per kilogram (2½ pounds) of body weight which is about 50 per cent. greater than would be required for adults. There are two indications for the use of digitalis in children: (1) those who are suffering from heart disease and who are in a state of chronic cardiac failure, and (2) those who have a regular rapid heart rate when that heart rate cannot be slowed by other measures. Massive doses of digitalis are contraindicated in two groups of children with heart disease: (1) those who have an acute infectious or toxic myocarditis, and (2) those who are suffering from acute cardiac failure with hearts that are overloaded.

Classification of Birth Paralyses

DR. LEE BEN CLARKE, Atlanta, Ga.: Many cases showing mental or physical deficiency and birth paralysis are due to disordered functions of the ductless glands. No case showing mental or physical deficiency should be dismissed as hopeless until it has been definitely established that it does not belong to this group. It is probable that few, if any, infants who survive have been permanently injured at birth, and that the defectivity is entirely intra-uterine. Early recognition, followed by early and thorough treatment, is necessary if the best results are to be obtained. Roentgen-ray studies of the sella turcica and complete study of the spinal fluid, including a Wassermann test, are invaluable in the differential diagnosis, since surgical conditions, i. e., pituitary tumors, etc., and syphilis must be excluded.

Intracranial Hemorrhage in the New-Born

DR. EUGENE ROSAMOND, Memphis, Tenn.: The points of interest in my case were the occurrence of an intracranial hemorrhage in a cesarean baby, the absence of all external bleeding, the severity of the convulsions, their duration of thirty-six hours before efforts to stop the hemorrhage were made, and the prompt cessation of the convulsions when the bleeding was stopped. Thirteen other cases of intracranial hemorrhage seen in the last twelve months all responded promptly to blood therapy. Several did not get beyond the stage of pallor and restlessness, when the coagulation time was taken, and the true condition discovered. Only six cases showed external bleeding. Since a routine determination of the blood coagulability would reduce the mortality of the new-born practically 50 per cent.; and, furthermore, since it would probably prevent a large number of the cases of birth palsies, it is well worth the extra time and care it would take to make this a universal, routine procedure.

Direct Exposure to Tuberculosis in Infancy and Childhood and Its Relation to Manifest Pulmonary Tuberculosis in the Adult

DRS. W. M. TAYLOR and L. J. MOORMAN, Oklahoma City: Routine history taking in our cases showed childhood exposure in 62 per cent. of 200 adult cases. This preponderance of childhood exposure in connection with adult cases strongly suggests reinfection from within rather than from without. We believe there must be many periods of mild tubercle toxemia between the date of infection and the discovery of clinical disease, and that many cases of so-called malnutrition, nervous instability, malaria, anemia, undetermined fever, etc., may be the result of such toxemia. In all probability there are many vague symptoms in childhood which arise from tubercle toxemia. After having done what we can to prevent early contact with open cases, we should employ every possible means to determine the degree of infection, especially in contact cases, in order that those showing heavy or even moderate infection may have special observation and supervision with the purpose of safeguarding the child by improving the environment and by the early recognition of symptoms and signs, should they develop.

Pulsus Alternans

DR. RANDOLPH LYONS, New Orleans: I have been impressed by the fact that if blood pressure readings were performed more carefully, bearing in mind the possibility of the presence of pulsus alternans, this symptom would be far more frequently detected by physicians in general practice than it is at present. The error of confusing the regular occurrence of late extrasystoles (pulsus bigeminus) with alternation of the pulse is the chief pitfall. According to White and Lunt, the error of confusing pseudo-alternation with true alternation, using the auscultatory blood pressure method, is about once in six times. It is possible that this error may be further reduced if we bear certain points in mind: 1. In pulsus alternans, on listening over the bend of the elbow at the time when all the beats are heard, the sounds are perfectly regular, whereas in cases of pulsus bigeminus there is always a delay after the weaker beat. 2. In pulsus alternans, on auscultating the heart, it is extremely rare to note any difference in intensity of the strong and weaker beats, while in the case of regular premature contractions, the premature beats are apt to be less intense. The auscultatory blood pressure method will, in a few instances, detect a slight alternation where tracings fail to reveal it. The delicacy of the method is demonstrated by the fact that an alternation of only 5 mm. of mercury can be detected. Furthermore, in two patients it was possible to recognize the diastolic pressure of the alternate strong and weak beats and thus determine their pulse pressure independently.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Physiology, Baltimore

Nov. 1, 1921, **58**, No. 1

*Comparative Effects of Parathyroid and Thyroid Feeding on Growth and Organ Hypertrophy in White Rat. A. T. Cameron and J. Carmichael, Winnipeg.—p. 1.

*Effect of Thyroid Feeding on Growth and Organ Hypertrophy in Adult White Rats. A. T. Cameron and F. A. Sedziak, Winnipeg.—p. 7.

*Fat Soluble Vitamin. IX. Incidence of Ophthalmic Reaction in Dogs Fed Fat Soluble Vitamin Deficient Diet. H. Steenbock, E. M. Nelson and E. B. Hart, Madison.—p. 14.

Pulmonary Circulation Time Quantity of Blood in Lungs and Output of Heart. G. N. Stewart, Cleveland.—p. 20.

Possible Relations of Weight of Lungs and Other Organs to Body Weight and Surface Area (In Dogs). G. N. Stewart, Cleveland. —p. 45.

Systemic Effects of Intravenous Injection of Solutions of Various Concentrations with Especial Reference to Cerebrospinal Fluid. L. H. Weed and W. Hughson, Baltimore.—p. 53.

Cerebrospinal Fluid in Relation to Bony Encasement of Central Nervous System as a Rigid Container. L. H. Weed and W. Hughson, Baltimore.—p. 85.

Intracranial Venous Pressure and Cerebrospinal Fluid Pressure as Affected by Intravenous Injection of Solutions of Various Concentrations. L. H. Weed and W. Hughson, Baltimore.—p. 101.

*Studies in Physiology of Vitamins. I. Vitamin-B and Secretory Function of Glands. G. R Cowgill and L. B. Mendel, New Haven, Conn. —p. 131.

Studies of Sugar in Blood of Pigeons. H. E. Honeywell, New York. —p. 152.

Studies of Visceral Sensory Nervous System. IX. Readjustment of Peripheral Lung Motor Mechanism After Bilateral Vagotomy in Frog. T. L. Patterson, Iowa City, Ia.—p. 169.

*Studies in Dynamics of Histogenesis. Tension of Differential Growth as Stimulus to Myogenesis. VIII. Experimental Transformation of Smooth Bladder Muscle of Dog, Histologically, into Cross-Striated Muscle, and Physiologically, into an Organ Manifesting Rhythmicity. E. J. Carey, Milwaukee.—p. 182.

Conditions Causing Unequal Distribution of Erythrocytes in Bloodstream. E. F. Bostrom, New York.—p. 195.

Effect on Growth of Feeding Parathyroid.—Taken as a whole the results obtained by Cameron and Carmichael indicate that even very heavy doses of parathyroid produce no definite effect on growth, and no organ hypertrophy.

Effect on Growth of Feeding Thyroid.—The resting condition of the thyroid gland in animals subjected to thyroid feeding suggests to Cameron and Sedziak that under normal conditions the output of thyroxin is determined by some factor in the blood passing through the gland—perhaps the thyroxin content of the blood itself—and as long as this remains above a certain level the setting free of thyroxin, presumably by the breakdown of idiothyroglobulin, is halted.

Result of Feeding Fat Soluble Vitamin Poor Diet.—Within a period of ninety-four days three out of five dogs fed on a fat soluble vitamin poor diet came down with an ophthalmia. Two dogs given a plentiful supply of this vitamin in the form of cod liver oil remained entirely normal. Of the affected animals, one died shortly after the incidence of the ophthalmia. The other two were completely cured, one by the daily administration of 20 c.c. of cod liver oil and the other by the administration of an ether extract of 30 gm. of saponified cod liver oil.

Physiology of Vitamins.—A number of solutions, such as extracts of rice polishings, wheat embryo, navy bean and yeast, Cowgill and Mendel found contain vitamin B. All of these products were without any noticeable effect on the rate of flow of pancreatic juice, bile and saliva. The hypothesis that vitamin B functions to stimulate these glands to secretory activity therefore is not supported.

Experimental Transformation of Smooth Muscle Into Striated Muscle.—The evidence presented by Carey proves that the structure of striated muscle is determined by the function it performs and the work it does, and that cross-striated muscle is not formed in anticipation to a future function. The pale bladder musculature may be transformed histologically into the red, cross-striated type by increasing the tensional stimulus to a degree comparable with that which the cardiac mesenchyme experiences normally and physiologically, into an organ manifesting rhythmicity as long as the hydrodynamic stimulus is applied.

American Review of Tuberculosis, Baltimore

November, 1921, **5**, No. 9

*Musculature of Finer Divisions of Bronchial Tree and Its Relation to Certain Pathologic Conditions. W. S. Miller, Madison, Wis.—p. 689.

Chemical Problems in Bacteriology of Tubercle Bacillus. E. R. Long, Chicago.—p. 705.

Method of Following Reaction Changes in Cultures of Acid-Fast Bacteria. E. R. Long and A. L. Major, Chicago.—p. 715.

*Roentgenographic Pleural Annular Shadows in Pulmonary Tuberculosis. Investigation of Their Clinical Significance and Hypothetical Explanation of Mechanism of Their Formation. J. B. Amberson, Jr., New York City.—p. 723.

Undergraduate Instruction in Tuberculosis. W. C. Klotz, Charlottesville, Va.—p. 751.

Some Problems of Medical Education in Tuberculosis. A. K. Krause, Baltimore.—p. 755.

Musculature of Bronchi.—Miller asserts that the bronchial musculature is not arranged in the form of distinct bands which encircle the bronchi and bronchioli, neither is it in the form of a continuous sheet, but it is in the form of a network. This network is made up of geodesic bands which prevent any tangential motion, and in this way provide for the greatest amount of strength and at the same time permit the greatest amount of extension and contraction of the bronchioli and their subsequent subdivisions. The muscle bands form a sphincter about the openings of the alveoli into the bronchioli respiratorii and ductuli alveolares; they also form a sphincter about the openings leading into the atria. These bands belong to the musculature of the bronchial tree and no to the air spaces. Distal to the openings leading into the atria no muscle has been found. There is no muscle in the walls of the air spaces. The size and position of the lungs is constantly changing with the respiratory movements. If the condition of the lungs at the end of a normal expiration be taken as a starting point it will be found that in the act of inspiration they increase in extent, especially that portion of each lung that is directly influenced by the descent of the diaphragm. This increase in size has its influence on the bronchial tree and especially on the smaller bronchi, the bronchioli, and their subdivision. In extreme expiration the dorsal and lateral branches form an acute angle with the main stem bronchus, while in inspiration they open out, the angle becomes wider and at the same time they elongate. This change is necessary in order that provision may be made for the expansion of the air spaces. The action of the bronchial musculature in expiration is active rather than passive.

Nature of Annular Shadows in Pulmonary Tuberculosis.—An investigation of roentgenographic pleural annular shadows at the Loomis Sanatorium has shown that these peculiar densities appeared and increased in size as accompaniments of active or progressive pulmonary tuberculosis, and that they decreased in size or disappeared only after the intrapulmonary lesions became quiescent or retrogressive; the converse of these propositions has not been observed. The shadows seem to have no other prognostic significance. A consideration of clinical, pathologic and roentgenographic factors Amberson says opens to serious doubt the validity of the theory that pleural annular shadows represent localized pneumothoraces secondary to lung rupture. A hypothesis is proposed to explain a majority of the shadows as the roentgenographic counterparts of simple chronic or subacute localized pleurisies, with or without localized retraction and separation of the pleural layers, and evidence is presented in support of this.

Boston Medical and Surgical Journal

Dec. 1, 1921, **185**, No. 22

*Action of Quinidin Sulphate in Heart Disease to Abolish Circus Movement of Auricular Flutter and Fibrillation. P. D. White, H. M. Marvin and C. S. Burwell, Boston.—p. 647.

*Factors in Suicide. A. H. Ring, Arlington Heights, Mass.—p. 650.

*Appendicular Lithiasis. H. Packard, Boston.—p. 656.

Preservation of Cells in Spinal Fluid as Measured by Cell Count. C. J. Campbell, L. M. Davidoff and G. P. Grabfield, Boston.—p. 657.

*Case of Bronchial Asthma, Possibly Due to Sporothrix. O. H. Stansfield, Worcester, Mass.—p. 658.

Case of Recurrent Spontaneous Pneumothorax. H. Morrison, Boston. —p. 659.

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Dec. 8, 1921, 185, No. 23

Osteitis Fibrosa. C. F. Painter, Boston.—p. 677.
Hip Fractures: Report of Forty-Two Cases Treated with Flexed Spica. G. A. Moore, Brockton, Mass.—p. 683.
Lateral Sinus Infection: Diagnosis, Treatment and Complications. G. L. Tobey, Jr., Boston.—p. 688.
Hospitalization of Syphilitic Patient. H. Goodman, New York.—p. 694.

Quinidin Sulphate in Heart Disease.—Quinidin sulphate has been used in thirty-five cases at the Massachusetts General Hospital, thirty-three cases of fibrillation and two of flutter. Of this number twenty-five cases, including one of the flutter patients, have shown at least a temporary restoration to normal rhythm. The duration of the normal rhythm has varied from a few hours to over four months, in the latter case still continuing. In several cases repeated courses have been given, in two cases a third course of quinidin succeeding when the first two courses had failed. The dosage has consisted of 0.2 gm. quinidin sulphate, given at 2 and at 4 p. m., on the first day (usually in capsule), and then if the patient has shown no toxic symptoms or signs from these test doses, 0.4 gm. is given five times on the second day (10 a. m., 12 m., 2, 4 and 6 p. m.), and on each succeeding day until normal rhythm has been restored or until toxic symptoms or signs have arisen. The total course dose has varied from 0.8 gm. in a successful case to 15.6 gm. in an unsuccessful case. Experience to date suggests that the digitalized cases are more apt to respond to the quinidin and that it is better not to give both drugs together.

Factors in Suicide.—While disease may be, perhaps usually is, the final determining factor in Ring's opinion in suicide, the underlying substrata of inherited tendencies is, however, most important. It has been said that normally human beings desire life above all things. Ring does not believe that this is true. Of course, no one desires to suffer, but there are many persons otherwise normal who would gladly "lay them down in their last sleep," if they could but learn of an easy way of thus evading "the slings and arrows of outrageous fortune." The type of person who has a fundamentally self-abasive temperament is much more likely, under stress of adverse environment or disease, to wish himself out of the world. If he has no belief in a future life with its punishments and rewards, this is still another reason for hastening that annihilation which will rid him of the conflict of life and bring everlasting sleep.

Calculus of Appendix.—Packard cites the case of a man, aged 51 years, who had suffered recurring attacks of abdominal pain, very mild in character, transient, and not necessitating absence from business nor the advice of a physician. Then he had an attack which continued five days showed no signs of abatement. Immediate operation was advised and accepted on the diagnosis of probably some unusual departure from normal in or about the appendix. The cecum was quickly exposed and was found bound down in the depths of the pelvic fossa in the midst of an indeterminate mass of adhesions. Enlargement of the incision and exposure of the parts with broad, deep retractors finally cleared the doubt by demonstrating an enormous appendix densely adherent in the depths of the fossa. On palpating it carefully and separating the adhesions it became apparent that some kind of an extremely hard substance was associated with the apendix. Careful finger dissection finally delivered the appendix which showed a ragged hole in one side through which protruded a large stone of irregular shape and with apparently the hardness of porcelain. Strangely no pus was encountered in the course of the manipulation—the ragged hole in the side of the appendix was apparently caused by pressure necrosis. Examination of the stone which weighed 8 gm. showed a fanglike portion such as might come from the jaw of a lion or tiger and a shapeless portion in a somewhat angular relation which might be compared to a fragment of alveola. The stone consisted of inspissated fecal material and an amorphous crystal deposit of bile salts in an irregularly concentric arrangement.

Bronchial Asthma Caused by Sporothrix.—Stansfield cites the case of a girl, aged 18 years, who had had, since infancy, attacks of shortness of breathing and wheezing, appearing suddenly, usually at night and without apparent cause. Each attack had lasted one or two days, but the most recent attack had lasted four days. No cause could be ascribed for the first attack in infancy. A roentgenogram of her chest showed some thickening at the lung roots and larger bronchi, but no further evidence of pulmonary disease. The sputum was water thin, colorless, with many white or pale yellow pin-head sized flakes in it. Many of these flakes were examined microscopically, and all were found to be made up of mycelia and yeastlike cells. The yeastlike organism grew rapidly at room temperature and at 37 C., the growth being that described as characteristic of a sporothrix. The patient was given sodium iodid, 45 grains a day at first, and the dose increased 3 grains a day until 90 grains were being taken. The dose was held at this level for three months. She is now well.

California State Journal of Medicine, San Francisco

December, 1921, 19, No. 12

Return to Work After Injury. M. K. Gibbons, San Francisco.—p. 458.
Occupational Diseases of Skin and Hands in California Industry. R. T. Legge, Berkeley.—p. 461.
Development of Modern Medical Service for Industrial Injured and Sick at Hahnemann Hospital of University of California. E. L. Gilcreest, San Francisco.—p. 462.
Service of Neuropsychiatry to Industrial Medicine. H. W. Wright, San Francisco.—p. 464.
Posttraumatic Neuroses; Their Mechanism. J. Catton, San Francisco. —p. 468.
Clinical Experience as to Several Kinds of Physiotherapy Employed in Reconstruction Work. J. T. Watkins, San Francisco.—p. 471.
Fractured Femurs. C. E. Early, Los Angeles.—p. 474.
Efficient Record Making in Treatment of Industrial Disabilities. H. L. Langnecker, San Francisco.—p. 477.

Canadian Medical Association Journal, Toronto

November, 1921, 11, No. 11

Smallpox in Edmonton. T. H. Whitelaw, Edmonton.—p. 805.
Abatement of Venereal Disease. G. G. Melvin, Fredricton, N. B.—p. 808.
Eye as Signal of Disease. W. G. M. Byers, Montreal.—p. 811.
Value of Expert Anesthesia to All Concerned. S. Johnson, Toronto. —p. 813.
*Ambulatory Treatment for Chronic Ulcers of Leg. F. B. Gurd, Montreal.—p. 815.
Nitrous Oxid-Oxygen Analygesia and Anesthesia in Obstetrics. W. Bourne, Montreal.—p. 818.
Recent Progress of Mental Hygiene Movement in Canada. C. M. Hincks, Toronto.—p. 823.
Unsuspected Syphilis of Nervous System: Its Laboratory Diagnosis. H. B. Maitland, Toronto.—p. 823.
Case of Giardiasis (Lambliasis) Intestinalis. F. G. Pedley, Montreal. —p. 829.
Considerations Regarding Surgical Treatment of Malpositions of Uterus. C. H. Gilmour, Toronto.—p. 831.
Treatment of Irreparable Nerve Injuries. R. I. Harris, Toronto.—p. 833.
Surgical Treatment of Gastric and Duodenal Ulcer. J. B. Deaver, Philadelphia.—p. 842.
Clinical Study of Pathology of Osteomyelitis. A. Gibson, Winnipeg. —p. 844.
Syphilis, Its Relation to Infant Mortality and Child Welfare with Discussion of Present Day Methods for Its Control. E. A. Morgan, Toronto.—p. 849.

Ambulatory Treatment of Chronic Ulcers of Leg.—The method described by Gurd is not original, in so far as it refers to the treatment of ulcers, with adhesive strappings. However, for the method of application and the exact procedures employed originality is claimed. The leg is bathed in washing soda solution, and thoroughly cleansed with soap suds and a soft brush. Any sloughing material is excised with scissors. After prolonged and thorough bathing, the leg is washed with petrolic ether. Occasionally alcohol may be profitably employed following the water bath for purposes of dehydration of the superficial layers of the skin. The patient then lies on his back with his leg in a nearly vertical position against the wall. This posture is maintained for from thirty minutes to two hours, at the end of which time the edema should have entirely disappeared. The leg is by this time thoroughly dry and is ready for strapping. The leg is retained in a somewhat elevated position, in order that the veins may remain collapsed, and the strapping is applied. Strips of adhesive plaster are torn, about 2.5 to 3.5 centimeters in width, and sufficiently long to overlap when placed circularly around the leg. Starting from the base of the toes, the foot is encircled by the straps up to the head of the fibula, each layer of strapping overlaps that already in position by

at least 1.5 c.c. If the ulcer be discharging freely, it is wise to apply a gauze dressing and bandage on the outside of the adhesive, in order that the discharge which exudes between the layers of strapping may be taken up. This should be changed as often as is necessary by the patient himself. The strapping need not be removed unless discharge becomes distinctly foul. As a rule, the first dressing is changed at the end of from four to ten days. Thereafter from two to three weeks between dressings usually suffices.

Journal of Industrial Hygiene, Boston

December, 1921, **3**, No. 8

Problem of Heart Disease in Industrial Worker. P. D. White, Boston.—p. 219.
Cardiac Disease and Its Relation to Industrial Efficiency. C. F. Coombs, London.—p. 227.
Chronic Manganese Poisoning: Two Cases. G. G. Davis, Chicago, and W. B. Huey, Joliet.—p. 231.
Trinitrotoluene Poisoning. C. Voegtlin, C. W. Hooper and J. M. Johnson.—p. 239.

Journal of Laboratory and Clinical Medicine, St. Louis

November, 1921, **7**, No. 2

*Pharmacology of Benzyl Compounds. C. Nielsen and J. A. Higgins, Chicago.—p. 69.
*Technic for Making Biliary Fisutla. F. C. Mann, Rochester, Minn.—p. 84.
*Technic for Establishment of Permanent Pancreatic Fistula with Secretion of Inactive Proteolytic Ferment. W. DeP. Inlow, Rochester, Minn.—p. 86.
Sources of Error in Determining Respiratory Quotient in Baby Respiration Apparatus. F. B. Talbot and M. E. Moriarty, Boston.—p. 91.
*Case of Tuberculoma of Spinal Cord. J. J. Waring, Denver, Colo.—p. 96.
*Isolation of Tetanus Bacilli from Cerebrospinal Fluid. Report of Case. G. R. Lacy and C. Murdock, Pittsburgh.—p. 100.
Differences in Response to Atropin in White and Colored Races. H. A. Paskind, Chicago.—p. 104.
Preliminary Report on Method of Determining Number of Complement Binding Units in Serums Giving Positive Wassermann Reactions. A. McNeil, New York.—p. 109.
Rapid Method of Preparing Tissues for Microscopic Examination. H. D. Melton, Richmond, Va.—p. 114.

Pharmacology of Benzyl Esters.—All the benzyl esters investigated by Nielsen and Higgins produced relaxation of intestinal muscles, lowered the blood pressure and depressed the respiration in a manner corresponding, in a general way, to the action of benzyl benzoate as demonstrated by Macht. The power to relax smooth muscles and thereby relieve spasmodic pain seems, in the cases of simple benzyl esters, to be proportional to their rates of hydrolysis; but in the cases of benzyl esters containing substituting groups such as in benzyl salicylate and benzyl acetylsalicylate, rate of hydrolysis to give benzyl alcohol is not a criterion of pharmacologic action. Of the twelve benzyl compounds tested, benzyl acetylsalicylate appears to be the most powerful intestinal relaxant. Benzyl salicylate is also very efficient.

Technic for Making Biliary Fistula.—The essentials of the technic described by Mann are, first, definite fixation of the common bile duct in a superficial position before its relation to the duodenum is disturbed and, second, draining the duct to the exterior. The operative procedure is carried out in two stages. In the first stage the duodenum is immobilized just under the skin in a manner so that the common bile duct is close to the surface. After complete healing has taken place, the duct is exposed, the distal end ligated, and the proximal end left open, flush with the skin.

Technic for Making Pancreatic Fistula.—A technic for the formation of pancreatic fistulas is described by Inlow which he believes offers certain advantages over those heretofore suggested. The duodenum is located, delivered into the wound, and turned to the right. The blood vessels in the immediate neighborhood of the entrance of the major pancreatic duct into the intestine are ligated and severed, the pancreas is separated from the duodenum in this region, and the duct itself isolated. The transplantation of the duodenum is accomplished by rotating its axis to the right, and approximating the two edges of the abdominal wall under the duodenum by means of four single mattress sutures. In the rotation of the duodenum a small portion of the pancreas is brought out of the abdomen and thereby the entrance of the duct into the gut becomes very superficial. The pancreatic duct is dissected free for the short distance which it runs obliquely beneath the serosa of the gut and is partially served at the point where it enters the muscular layer.

Tuberculoma of Spinal Cord.—A case of pulmonary tuberculosis complicated by prostatic abscess and a macroscopic intramedullary tuberculoma of the spinal cord is reported by Waring. The tumor was removed, but little improvement in the patient's condition followed. He died four months after the operation.

Infection with Low Grade Tetanus Spores.—The possibility that many may be inoculated with low grade tetanus spores which are rapidly phagocyted and carried to distant parts of the body where they may lie dormant until some factor arises which will permit them to develop is suggested by the case reported by Lacy and Murdock. The patient came to the hospital because of enlargement of the scrotum. The right testicle was removed. The pathologic report was tuberculous orchitis and epididymitis. Twelve days after operation, he began to complain of severe pains in the back and back of the neck. He was given 10,000 units of tetanus antitoxin subcutaneously. The following day he showed well-developed clinical tetanus and was given two intravenous and one intramuscular injection of 10,000 units of antitoxin, making a total of 30,000 units in twenty-four hours. The next day he was given two injections of antitoxin, 10,000 units each, and a similar amount the third day. The fifth day lumbar puncture was done and 10,000 units of antitoxin were administered intraspinously. Antitoxin (10,000 units intramuscularly) on the two subsequent days failed to give immediate relief of symptoms. At this time, the patient developed hypersensitiveness to the serum and such treatment was discontinued. During the course of antitoxin treatment, a period of seven days, the patient had received 110,000 units. Sedatives were administered to alleviate the severe pain throughout the period of infection. Improvement was gradual and uninterrupted from the cessation of serum therapy until the time of complete recovery.

Journal of Mental and Nervous Diseases, New York

October, 1921, **54**, No. 4

Case of Spinal Spastic Paralysis (Primary Lateral Sclerosis). I. T. Broadwin, New York.—p. 289.
Case of Progressive Muscular Dystrophy. E. D. Friedman, New York.—p. 294.
Emotional Episodes Among Psychopathic Delinquent Women. E. R. Spaulding, New York.—p. 298.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

December, 1921, **18**, No. 5

Effect of Hydrogen Ion Concentration on Toxicity of Alkaloids for Paramecium. M. M. Crane, St. Louis.—p. 319.
Chemotherapy of Antimony, Comparison of Antimonyl Tartrates with Organic Compounds of Antimony. R. G. Fargher and W. H. Gray, London, England.—p. 341.
*Experimental Inquiry into Sedative Properties of Some Aromatic Drugs and Fumes. D. I. Macht and G. C. Ting, Baltimore.—p. 361.
*Effect of Antispasmodic Drugs on Bronchus. D. I. Macht and G. C. Ting, Baltimore.—p. 373.

Sedative Properties of Aromatics.—The effects of a number of odoriferous substances were studied by Macht and Ting on the behavior of rats in the circular maze. It was found that valerian and asafetida exert a distinctly sedative effect when studied in this way. The inhalation of fumes of various samples of incense was not found to produce any depressant effect unless the fumes were so heavy as to render intoxication with poisonous gases probable. it is interesting to note that of the two principal constituents of biblical incense, olibanum and galbanum, neither one produced any physiological effect, by the methods studied. The lack of depression after the use of other incense is also surprising but agrees well with the statements of some orientals, that the inhalation of the fumes of certain specimens of incense are actually stimulating to the mental processes. Finally, it is said that the inhalation of tobacco smoke is by no means as innocuous as that of incense. A few experiments were made with such smoke and the toxic effects were so marked that further experimentation was discontinued.

Effect of Antispasmodic Drugs on Bronchus.—The method employed by Macht and Ting was the so-called direct one, namely the study of various drugs on the excised and surviving bronchial muscle. The most powerful bronchodilators determined were firstly papaverin and various benzyl compounds which act on the muscle cells; secondly, atropin which exerts its action through paralysis of the parasympathetic myoneural junctions, and thirdly, epinephrin which produces active stimulation of the true sympathetic dilator terminals. The iodid, bromid, and nitrate ions analytically studied produced a relaxation of the bronchial muscle. This effect, however, is probably considerably minimized in the intact body. An interesting chemicopharmacodynamic relationship which is of practical interest has been traced in connection with the action of various xanthin derivatives on the bronchial muscle. The action of various antispasmodic drugs on bronchial muscle varies in intensity to some extent with the previous tonicity or spasticity of the bronchus. A distinct different in response to their reaction to drugs has been found to exist between the fresh surviving bronchi from healthy lungs on the one hand and lungs showing more or less pathological change on the other hand.

Medical Record, New York

Dec. 3, 1921, **100**, No. 23

Case of Progressive Muscular Atrophy with Compensatory Mental Reactions. N. D. C. Lewis, Washington, D. C.—p. 969.
*Use of Potassium Nitrate in Osteomyelitis and Other Chronic Infections. J. R. Pennington, Chicago.—p. 975.
Whispered Voice Sound in Lung Conditions Other Than Pneumonia. H. H. Lissner, Los Angeles.—p. 977.
*Hypernephroma of Sternum. J. A. MacLeod and W. F. Jacobs, Buffalo. —p. 979.
Carcinoma of Lung; Report of Case. G. A. Friedman, New York.—p. 980.
Roentgen-Ray Dermatitis. M. L. H. A. Snow, New York.—p. 981.
Neglect of Narcotic Drug Problem. E. S. Bishop, New York.—p. 985.

Potassium Nitrite in Osteomyelitis.—Pennington makes a brief preliminary report on the use of potassium nitrate in various types of infection and emphasizes the importance of using it just as he indicates although he is not able to give a concrete reason for its action. The nitrate is not antiseptic; when added to a culture the growth is greater than the control. Again, the number of bacteria in the discharge increases in a few days' time, instead of decreasing, and yet it seems to influence favorably infection of many kinds. The solution of potassium nitrate is applied through a dressing of rolled oats. The salt is mixed with the oats and to this combination is added hot sufficient water to reduce it to a poultice-like mass. (The dose is governed by the reaction desired and ranges from 10 to 60 grains to the ounce of oats.) The poultice is spread on the affected area to the thickness of about three-sixteenths inch, then covered with oiled silk, paraffin paper, rubber dam, etc., and over this a bandage. By aid of the roentgen ray and by palpation of the soft tissues the affected area is approximately mapped out; the dressing of oats and nitrate is then applied well beyond the boundaries of the area involved. Treatment of the sinuses directly by injection of the nitrate has no influence whatever, and mixing with rolled oats is the only way in which any effect is produced.

Hypernephroma of Sternum.—Two cases of this condition are reported by MacLeod and Jacobs at one time or other. Each of these cases was regarded as an aneurysm of the aorta; in the second case, up to the time of the postmortem examination.

Military Surgeon, Washington, D. C.

December, 1921, **49**, No. 6

History of Military Medicine. F. H. Garrison.—p. 601.
Bilateral Pneumothorax in Case of Pulmonary Tuberculosis. E. D. Kremers, J. F. Hammond and R. E. Scott.—p. 626.
Reports and Records of Communicable Disease. H. Emerson, New York.—p. 632.
Minor Communicable Diseases in A. E. F. H. Emerson, New York. —p. 642.
Sanitary Reports, Monthly and Special. H. Emerson, New York.—p. 652.
Opinions Based on Intelligence Tests at Station Hospital, Fort McPherson, Georgia. A. T. Cooper.—p. 660.
Statistics of Venereal Disease in Navy. M. A. Clark.—p. 665.
Venereal Diseases in United States Army. M. A. Clark.—p. 672.
Importance of Arthritis and Rheumatoid Conditions from Military Standpoint. R. Pemberton.—p. 681.
New Philippine Mosquito (Diptera, Culicidae). C. S. Ludlow.—p. 690.

Minnesota Medicine, St. Paul

December, 1921, **4**, No. 12

Painful Scars. J. F. Corbett, Minneapolis.—p. 682.
Some Practical Experience with Injuries with Special Reference to Fractures. C. W. More, Eveleth.—p. 687.
Cystocele and Prolapse. R. Earl, St. Paul.—p. 696.
Submucous Ulcer of Bladder and Its Surgical Treatment. V. C. Hunt, Rochester, Minn.—p. 703.
Duodenal Ulcer. T. R. Martin, Duluth.—p. 708.
Appendicitis, Diverticulitis, and Ectopic Pregnancy; Differential Diagnosis. E. R. Hare, Minneapolis.—p. 714.
*Sciatica; Treated by Epidural Injections and Removal of Foci of Infection. W. O. Ott, Rochester, Minn.—p. 718.
*Vital Capacity of Lungs in Cardiac Disease. H. L. Ulrich and M. H. Nathanson, Minneapolis.—p. 721.

Epidural Injections in Sciatica.—In thirty-four cases of sciatica in which a definite removable cause could not be found, the removal of possible foci of infection in 62 per cent. combined with repeated epidural injection gave a permanent cure in 27 per cent., and permanent amelioration of symptoms; in 40 per cent., the patients were able to continue their occupation with a fair degree of comfort. Thirty-three per cent. did not obtain permanent beneficial results. The technic of epidural injection has been described quite fully by Cathelin, Strauss, and others. Of the thirty-four patients, fourteen received one injection, thirteen two injections, four three injections, two four injections, and one five injections. Nine patients received complete and permanent relief; fourteen received partial relief, which allowed them to return to work; eleven did not receive any permanent benefit from the injection. Temporary relief, that is, for from two days to two weeks, either complete or partial, was obtained by thirty-one patients.

Vital Capacity of Lungs in Heart Disease.—Of 120 cases studied by Ulrich and Nathanson cardiac disease was found in only eighty-four. The remaining thirty-six cases were diagnosed as neurasthenia, effort syndrome or cardiac neurosis. In the cardiacs, the vital capacities as read on the gasometer were definitely reduced as compared with the calculated normal figures. In the noncardiacs, there was a much greater approximation of the two curves. In the cardiacs the average reading was 2,303 c.c. as compared with an average calculated figure of 3,842 c.c. In the noncardiacs the average vital capacity reading was 3,586 c.c. as compared with the average estimated normal figure of 3,938 c.c. In each case, the percentage of the normal vital capacity was calculated. It was quite evident that cardiac impairment is accompanied by reduction in vital capacity which is neither slight nor questionable, but very definite and unmistakable. The authors have found the determination of the patient's vital capacity of value in two different types of cases. In the first place, in an individual presenting symptoms which might be referable to an impaired cardiac function, the vital capacity assists in determining whether or not any cardiac involvement is present. Secondly, in cases in which the presence of a cardiac lesion is definitely known, it gives a fairly accurate index of the functional capacity of the heart. As a rule, the lower the vital capacity, the poorer the prognosis. Vital capacity determination also gives a measure of the results of treatment and shows whether cardiac tolerance for work is increasing or diminishing. The most probable explanation of the reduced vital capacity is a loss of the normal lung elasticity, due to stasis in the pulmonary circulation.

Nebraska State Medical Journal, Norfolk

December, 1921, **6**, No. 12

Management of Heart in Pneumonia. G. P. Pratt, Omaha.—p. 365.
Sudden Death in Infantile Eczema. A. Sinamark, Fremont.—p. 369.
Acquired Splanchnoptosis. M. J. Breuer, Lincoln.—p. 371.
Indications for Cesarean Section; Its Promiscuous Misuse. D. C. Sigworth, Norfolk.—p. 375.
Case of Dextrocardia. F. X. Rudolff, Battle Creek.—p. 377.
Prolapse of Uterus. C. A. Roeder, Omaha.—p. 378.
Basal Metabolism and Its Practical Significance. M. G. Wohl, Omaha. —p. 383.
Standardization of Nebraska Hospitals. F. Conlin, Omaha.—p. 388.
Civilian Surgeon's Story of Great War. H. W. Orr, Lincoln.—p. 391.

New Jersey Medical Society Journal, Orange

December, 1921, **18**, No. 12

Dangers and Duties of the Hour. H. A. Hare, Philadelphia.—p. 360.
Important Clinical Features of Goiter. J. P. Reilly, Elizabeth.—p. 366.
Treatment of Constipation During First Year of Life. F. H. von Hofe, South Orange.—p. 374.
Control of Cancer. J. F. Hagerty, Newark, N. J.—p. 382.
Cancer of Stomach. C. A. Hofer, Metuchen, N. J.—p. 385.

New York Medical Journal

Dec. 7, 1921, **114**, No. 11

Difficult Case of Bronchoscopic Foreign Body Extraction Complicated by Pyopneumothorax. H. L. Lynah, New York.—p. 617.
Mucocele of Nasal Accessory Sinuses; Two Cases of Pansinus Involvement with Recovery After Interval Operations. V. Dabney, Washington, D. C.—p. 619.
*Treatment of Recurrent Pleurisy by Injection of Oxygen. A. MacFarlane, Albany, N. Y.—p. 623.
Rôle Played by Physical Exercise in Respiratory Gymnastics. P. Koundjy, Paris, France.—p. 627.
Aspergillosis and Pulmonary Pseudotuberculosis. V. A. Lapenta, Indianapolis.—p. 629.
Practical Points in Treatment of Pulmonary Hemorrhage. H. Schwatt, New York.—p. 631.
Significance of Tracheobronchial Node Tuberculosis and Its Diagnosis. L. Frischman, New York.—p. 634.
Laryngeal Tuberculosis. S. Cohen, Philadelphia.—p. 636.
Tonsil Enucleation and Tonsil Enucleator. C. B. Meding, New York.—p. 638.
Peritonsillar Abscess and Its Radical Treatment. I. M. Heller, New York.—p. 642.
Tonsillar and Adenoid Tissue Under Roentgen-Ray Treatment. W. G. Herrman, Asbury Park, N. J.—p. 646.
Tonsil Thyroid Syndrome in Female. J. H. Barach, Pittsburgh.—p. 648.
Diseased Tonsil. M. S. Ittelson, Brooklyn.—p. 649.
Influenza as Primary Edema of Respiratory Mucous Membranes and Adnexa. I. M. Brenner, New York.—p. 651.
Symptomatology of Influenza. J. C. Regan, Brooklyn.—p. 656.

Oxygen Injection in Recurrent Pleurisy.—MacFarlane recommends the injection of oxygen into the pleural cavity in these cases of recurrent pleurisy and cites two instances in which the method was used. He says that there is no record of its use for this purpose in the United States.

Ohio State Medical Journal, Columbus

Dec. 1, 1921, **17**, No. 12

Treatment of Simple Compound Fractures. W. G. Stern, Cleveland.—p. 813.
Bone Grafting and Its Clinical Application. J. J. Kurlander, Cleveland.—p. 816.
Relations of Pediatrics and Obstetrics. R. E. Krighaum, Columbus.—p. 819.
Incidence and Mortality of Congenital Syphilis at Babies' Dispensary and Hospital of Cleveland. C. W. Burhans, Cleveland.—p. 821.
Cooperation and Correlation Between Laboratory and Clinic. H. T. Karsner, Cleveland.—p. 823.
Prediabetic Stage. H. J. John, Cleveland.—p. 826.
When Shall We Do An Ethmoid Operation? W. Mithoefer, Cincinnati.—p. 831.
Use of Radium in General Surgical Conditions with Special Reference to Uterine Conditions. L. G. Bowers and E. R. Arn, Dayton.—p. 834.
Preoperative and Postoperative Radium Therapy: Report of Cases, Dosage and Methods. B. R. Kirkendall, Columbus.—p. 837.
Radium in Dermatology. C. J. Broeman, Cincinnati.—p. 841.

Pennsylvania Medical Journal, Harrisburg

December, 1921, **25**, No. 3

Obscure Forms of Posterior Uveitis; Their Relation to Sinus Disease. L. C. Peter, Philadelphia.—p. 151.
*Primary Thrombosis of Pulmonary Artery. F. T. Billings, Pittsburgh.—p. 152.
Fractured Long Bones; Their Replacement and Treatment. H. C. Masland, Philadelphia.—p. 161.
Recent Tendencies in Infant Feeding. J. L. Morse, Boston.—p. 167.
Postgraduate Instruction in Pennsylvania. D. A. Webb, Scranton.—p. 173.
Peril of Wood Alcohol Toxemia and Remedy. S. L. Ziegler, Philadelphia.—p. 177.
Mechanical Aspects of Acquired Chronic Valvular Heart Disease. A. P. D'Mura, Pittsburgh.—p. 182.
*Posterolateral Sclerosis Seen in Cases of Severe Anemia. G. Wilson and J. McIver, Philadelphia.—p. 189.
Removal of Foreign Bodies from Cornea. G. H. Shuman, Pittsburgh. p. 194.
Report of Case of Cranial Defect. J. S. Rodman, Philadelphia.—p. 196.

Primary Thrombosis of Pulmonary Artery.—Among 6,200 necropsies on which Billings has data there were sixteen cases of primary thrombosis of the pulmonary artery, an incidence of 0.26 per cent. Four cases from the clinical records of the Western Pennsylvania Hospital, are reported in detail.

Posterolateral Sclerosis in Anemia.—Spinal cord changes in anemia are seen frequently and often rather late in life. Most of the patients whose cases are reported by Wilson and McIver were past 50 years of age. The onset of the disease is gradual and the symptoms are much the same in every case. Paresthesia in the hands and feet has been an early and constant complaint and with this goes a gradual increasing weakness more marked in the lower extremities. The characteristic motor and sensory losses are as follows: The lower limbs show the signs of pyramidal tract involvement with the loss of the sense of position and of vibration. The other forms of sensation remain intact until late in the disease. The spinal cord symptoms are frequently present when the blood picture is almost normal. This is due to the toxin which, in many cases, causes spinal cord degeneration before the blood is affected.

Texas State Journal of Medicine, Fort Worth

November, 1921, **17**, No. 7

Curability of Cancer; Report of Four Hundred Cases Treated by Cautery. A. C. Scott, Temple.—p. 334.
Comparative Value of Surgery and Radium in Carcinoma of Cervix. J. T. Moore, Houston.—p. 339.
Radium Therapy in Cancer of Uterus. M. W. Sherwood, Temple.—p. 341.
Diagnosis of Cancer of Colon. F. C. Beall, Fort Worth.—p. 343.
Interpretation of Gastric Deformities Produced by Ulcer and Carcinoma. W. T. Wilson, Temple.—p. 348.
Tumors of Alveolar Border of Jaws. H. L. D. Kirkham, Houston.—p. 351.
Surgical Backache. R. W. Knox, Houston.—p. 355.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Nov. 19, 1921, **2**, No. 3177

Drug Habit. W. E. Dixon.—p. 819.
*Pyrogenic Therapy. A. G. Auld.—p. 822.
*Tibial Band Grafts for Radical Cure of Large Inguinal Hernia. D. W. Hume.—p. 824.
Ionic Medication in Treatment of Neuritic and Rheumatic Pains. W. F. Somerville.—p. 825.
Case of Cholecystgastrostomy. C. A. Moore.—p. 826.
Diagnosis and Treatment of Borderland Cases. G. M. Robertson.—p. 827.
Blood and Nervous Diathesis. H. Campbell.—p. 831.
Management and Treatment of Paraplegia. G. Riddoch.—p. 834.
Physiology of Symptom Production in Disease and Injury of Nervous System. F. M. R. Walshe.—p. 837.
*Epilepsy from Psychologic Standpoint. A. Carver.—p. 840.
Early Diagnosis and Treatment of Disseminated Sclerosis. D. K. Adams.—p. 841.
Case of Traumatic Aniridia. W. B. Hunter.—p. 843.
Iodine Treatment of Goiter. R. Stewart.—p. 843.
Torsion of Testis Occurring During or Immediately After Birth. R. C. Begg.—p. 843.

Pyrogenic Therapy.—The cases in which reactions were produced by Auld by the protein-protected colloidal metals were chiefly those of delayed resolution in pneumonias and pleurisies, with rises of temperatures to 100 and 101 F. for some considerable time. Recovery seemed complete at the end of the reaction; the temperature remained normal and the local lesions gradually cleared up. Some cases of acute pneumonia were then tried, but the results were by no means favorable. Certainly a fall of temperature soon occurred; but this proved to be a negative phase effect, as it always rose again to about the original level. These trials indicated that with a high temperature the defenses of the body are already fully engaged, and the introduction of pyrogenic substance is illogical, and merely adds to an already heavy burden. This treatment is therefore indicated in subacute or chronic conditions, wherein the defensive reserves are quiescent or only partially called out. Cases of arthritis of various kinds have mainly been treated, with on the whole very favorable results; but skin affections and many infective disorders have also been laid under contribution. Where the response is good no other treatment gives such rapid or complete relief. Auld records some results obtained in certain functional

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neuroses presenting pain or paresthesia or both, and probably of toxic origin. Though not serious, these disorders are very persistent and often entail intolerable discomfort, being more or less refractory to ordinary methods of treatment. In one case pyrogenesis was induced with alfalfa seed proteose. In another caseose was the pyrogen, and in the other cases lecitho-protein was used. The object of pyrogenic therapy is to induce a temperature between 102 and 105 F. in those infective or toxic conditions wherein a sufficient stimulus for the induction of pyrexia is naturally lacking or else is weakened, though capable of producing a ready response if artificially roused. The details are discussed.

Iliotibial Band Grafts in Herniotomy.—Hume transplants a piece of iliotibial band of such a size and shape that, when folded diagonally, it fills the triangular space between Poupart's ligament, the outer border of the rectus sheath, and the exit of the cord through the fascia transversalis. The graft is sutured with silk to the deep edge of Poupart's ligament from the attachment of the conjoined tendon to the pubic spine to a point a little external to the exit of the cord, and the inner edge was also stitched with silk to the outer border of the rectus sheath (conjoined tendon). The upper and outer edge is passed beneath the fibers of the internal oblique and transversalis muscles, and anchored to the deep surface of these by two or more mattress sutures of chromicized catgut, so that when contraction occurred during some effort requiring the use of the muscles of the abdominal wall, the graft should be drawn tight, and so offer the greatest possible resistance to the exit of any of the abdominal contents. The cord is replaced on the graft, and the external oblique and superficial structures are closed over it in the usual manner.

Nature of Epilepsy.—Epilepsy, Carver says, is a syndrome conditioned by a multiplicity of factors. Each epileptic personality requires intensive individual study. In a majority of cases the psychologic factors are by far the most important, and an understanding of these is, for therapeutic reasons, essential.

China Medical Journal, Shanghai

September, 1921, **35**, No. 5

*Ray's "Hemolytic" Test in Kala-Azar. R. H. P. Sai.—p. 397.
Agglutination Titer Following Repeated Intravenous Injections of Tab Vaccine. C. H. Han and C. W. Young.—p. 400.
Present State of the Schistosome Problem. E. C. Faust.—p. 405.
Teaching of Surgical Technic. C. C. Elliott.—p. 411.
Cholera at Tzeliutsing. W. Crawford.—p. 417.
*Investigation of Some Chinese Foods. H. Embrey.—p. 420.
Relations Between Native and Foreign Physicians. W. H. Dobson.—p. 448.
Liver Abscess Following Amebic Dysentery. F. R. McDonald.—p. 453.
Adenoids and Tonsils, with Special Relation to Pharyngitis and Otitis Media, Treatment and Operation.—p. 454.
Use of Fine Silk in Surgery. A. S. Taylor.—p. 467.
Ectopic Gestation. W. E. Robertson and S. Shi-Hwei.—p. 479.

Ray's Test for Kala-Azar.—This test was described in THE JOURNAL, March 12, 1921, p. 753. Sia employed the test on eighty-six patients suffering from various diseases and ten normal individuals. The positive tests were obtained only in kala-azar patients. Furthermore, all the cases of kala-azar gave a positive result. In every instance, the diagnosis was proved by finding the Leishman-Donovan bodies in the stained films made from spleen puncture. In cases of kala-azar which showed a clinical improvement under treatment, there was a decided change in the character of the "hemolytic" test. The turbidity became progressively less as the patient improved, until finally the test was only faintly positive.

Chinese Foods.—Embry reports the results of feeding experiments on white mice using mung beans, mung bean sprouts, red kaoliang, white kaoliang and Chinese persimmon to determine their food value.

Dublin Journal of Medical Science

November, 1921, **4**, No. 21

Menstruation and Ovulation. O. Frankl.—p. 481.
Early Diagnosis of Carcinoma of Uterus.—p. 491.
Roentgen Ray and Radium Treatment in Gynecology.—p. 500.
Modern Investigations on Breaking Down of Urea by Enzyme Urease. E. A. Werner.—p. 512.

Edinburgh Medical Journal

December, 1921, **27**, No. 6

Clinical Aspects of Air Swallowing and Some Other "Bad Habits" in Infants and Young Children. J. Thomson.—p. 313.
Physical Education in Universities of United States of America. R. T. M'Kenzie.—p. 328.
Relation of Art to Modern Medicine. D. Duckworth.—p. 353.
Surgery of Nasal Deformities. D. Gutherie.—p. 365.

International Journal of Public Health, Geneva, Switzerland

November-December, 1921, **2**, No. 6

State Action in Prevention of Tuberculosis. G. Newman.—p. 558.
Health Education of Children. L. E. Holt.—p. 573.
Preventive Medicine and Eugenics. L. Darwin.—p. 581.
Self-Disinfection in Campaign Against Venereal Diseases. G. A. Reid.—p. 591.
The Case Against. O. May.—p. 599.
Anopheles Claviger. M. Sella.—p. 605.

Journal of Tropical Medicine and Hygiene, London

Nov. 15, 1921, **24**, No. 22

*Charcot-Leyden Crystals in Stools as Aid to Diagnosis of Endamebic Dysentery. J. G. Thomson and A. Robertson.—p. 289.
Experimental Pulmonary Mycosis in Guinea-Pigs. R. W. Mendelson.—p. 292.

Value of Finding Charcot-Leyden Crystals in Stool in Amebic Dysentery.—From their observations on this subject Thomson and Robertson are certain that Charcot-Leyden crystals occur in the stools of cases of endamebiasis, from which all possibility of a superimposed helminthic infection has been excluded but it remains to be proved that they may occur in helminthiasis per se. The percentage of cases showing these crystals in amebic stools was twenty-five. Nearly all the cases were of the chronic type.

Lancet, London

Nov. 19, 1921, **2**, No. 5125

Permeability in Physiology and Pathology. H. J. Hamburger.—p. 1039.
Craniotabes of Fetus and Infant. E. Hughes.—p. 1045.
*Antimony and Emetin in Bilharzia Disease. F. G. Cawston.—p. 1049.
Outbreak of Bacillary Dysentery in Boys' School. W. E. Fitz-Gerald.—p. 1051.
Case of Moral Imbecility. W. N. East.—p. 1052.
Case of Melanoma of Choroid. A. E. Keown.—p. 1056.

Antimony and Emetin in Bilharziasis.—Cawston has obtained the best results by giving an intramuscular injection of emetin hydrochlorid daily for three days and then three times a week for three weeks. He generally commences with an initial dose of one-half grain for an adult and one-third grain for a child. A dose of 1 grain is a sufficiently large one to work up to in a child of 12. Vomiting may occur if the injection is given shortly after a meal. The maximum regular dose for an adult may be regarded as 2 grains but larger doses appear to cause toxic effects and to cure more rapidly. The cumulative action of emetin is almost as marked as the acquired tolerance for antimony, and the dose should be lessened or given less frequently toward the close of treatment. The aim should be to keep the patient well under the influence of ipecacuanha without producing undesirable toxic effects. A slight return of albuminuria after the urine has cleared sometimes indicates toxemia, and—as with the antimony treatment—suggests that the injections must be given less frequently or the dose lessened. It is generally necessary to continue treatment for about twenty-five days.

Tubercle, London

November, 1921, **3**, No. 2

Dispensary Case Records and the Traveling Dossier. G. T. Hebert.—p. 49.
*Treatment of Tuberculosis in London in 1914 and 1915; Position of the Sanatorium. N. Bardswell.—p. 60.

Prognostic Value of Tubercle Bacilli in Sputum.—Significance of tubercle bacilli in sputum in the course of an inquiry made by Bardswell bearing on this point, one fact impressed itself on all who were engaged in the work, when a death was reported, the original case papers nearly always gave a record of a positive sputum; whereas, when the return gave the satisfactory intimation that the patient was alive and in full work, reference to the files rarely showed that tubercle bacilli had been found.

Bulletin de l'Académie de Médecine, Paris

Oct. 25, 1921, **86**, No. 34

Cancer Anemia. A. Robin and Bournigault.—p. 198.
Asthma from Echinococcosis. L. Rénon and A. Jacquelin.—p. 204.
*Sympathectomy for Angina Pectoris. T. Jonnesco.—p. 208.
The Post Partum Shock. P. Guéniot.—p. 210.
Long Guides for Forceps. Demelin.—p. 213.

Surgical Treatment of Angina Pectoris.—Jonnesco relates the progressive improvement in his second case of recurring precordial pain treated by resection of the left cervicothoracic sympathetic last June. The patient is a man of 54, and the sensations of constriction in the upper part of the chest and suffocation were first experienced eight years before. They had been growing worse, and for the last year frequently recurring pains in the precordial region had been very severe, with sensations of suffocation for ten or fifteen minutes at a time. There was also chronic bronchitis and a positive Wassermann reaction.

Bulletin Médical, Paris

Nov. 5, 1921, **35**, No. 45

The Post Partum Shock. P. Guéniot.—p. 883.

Bulletins de la Société Médicale des Hôpitaux, Paris

Oct. 28, 1921, **45**, No. 30

Hypertrophic Tuberculous Cirrhosis. P. Merklen et al.—p. 1380.
Pigmented Syphilids. Milian.—p. 1383.
Otitis in Young Infants. M. Renaud.—p. 1384.
*Surface Tension of Urine. J. Troisier.—p. 1390.
Prophylaxis of By-Effects of Arsenicals. C. Flandin, A. Tzanck and Roberti.—p. 1402.
*Transient Hyperthyroidism after Bronchoscopy. E. Rist and M. Weiss.—p. 1405.
*Artificial Emphysema for Roentgenography of Kidney. H. H. Carelli.—p. 1409.

Surface Tension and Liver Functioning.—This report of extensive research in Chauffard's laboratory establishes that the surface tension of the urine varies with its content of many different substances—each of which has an individual action in raising or lowering the surface tension. The modification of surface tension during digestion of a peptone test meal was studied in dogs in blood drawn directly from the portal vein, and in the urine from cases of liver disease, etc.

Transient Hyperthyroidism from Tracheobronchoscopy.—Rist and Weiss have noted symptoms resembling those of exophthalmic goiter developing at once after endoscopy of the air passages. The symptoms were transient, all subsiding without a trace in twenty-four hours.

Injection of Gas to Outline the Kidney.—Carelli's method was reviewed editorially, Oct. 1, 1921, p. 1108, when published elsewhere.

Lyon Médical

Oct. 25, 1921, **130**, No. 20

*Plastic Tuberculous Pericolitis. M. Durand and A. Cade.—p. 889.
Cholecystectomy for Gallstones; Fifty Cases. R. Leriche—p. 894.
Medical Impressions of Poland.—p. 917.

Adhesive Pericolitis.—Durand and Cade ascribe to tuberculosis the chronic adhesive pericolitis of probably thirty years' standing in the man of 55. Acute pancreatitis finally proved fatal, superposed on old cirrhosis of the pancreas.

Revue Médicale de la Suisse Romande, Geneva

March, 1921, **41**, No. 3

Diagnosis and Treatment of Syphilitic Aortitis. M. Roch.—p. 137.
*Technic for Artificial Pneumothorax. R. Burnand.—p. 148.
*Duration of Artificial Pneumothorax. M. Jaquerod.—p. 153.
The Hemoclasic Crisis. P. Gautier.—p. 156.
Recurring Hemoptysis from Irritation from Calculus. M. Jaquerod.—p. 166.
Pleuritic Effusion with Artificial Pneumothorax. L. de Reynier and G. Rossel.—p. 169.
Opiates in Treatment of Pathologic Anxiety. A. Starobinsky.—p. 175.
*The Liver in Mercuric Chlorid Poisoning. G. Turrettini and Piotrowski.—p. 178.
*Insomnia Following Epidemic Encephalitis. T. Reh.—p. 184.

Examination of Pleural Cavity for Artificial Pneumothorax.—Burnand's experience at Leysin confirms that if the needle in the pleural cavity becomes plugged, it is extremely dangerous to try to open up the lumen by forcing in air, compressing the tube or otherwise. Even spontaneous aspiration of the air already in the needle or tube may prove immediately fatal. To open up the plugged needle, the guide must be used. If the pleura is free and the lung elastic, the needle as it pierces the pleura stops of itself in the cavity; the hand holding it feels that the tip is free. The vacuum in the pleura aspirates a little air from the needle, and this pushes back the lung from the tip. If the manometer then does not vary, the needle must be plugged. If the guide does not open it up, it is better to change the needle; viscous blood inside prevents manometer readings and the guide cannot expel it. If the pleura is tough and leathery so that the needle cannot penetrate it, there is no need to insist, as this always testifies that there must be adhesions. If the tip has run into lung tissue, the sensation may be that of pushing a needle into cheese; in this case the parenchyma is infiltrated or cheesy. If the tissue feels dry there is fibrous induration. In either event, these sensations show that the needle has penetrated both layers of the pleura, and the assumption is that they are adherent and that the pneumothorax is impracticable at this point, although it may be well to withdraw the needle a little and try again, to keep the tip in the pleural cavity. The tip of the needle may be not quite free, but still no resistant obstacle is felt. The guide is instructive here; pushing it through the needle for 1 or 2 mm. beyond the tip, it may meet with slight vague resistance, membranous and elastic. This is a sign that the pleura is almost normal but that there are slight adhesions, and only a very small amount of the gas, if any, can be injected. He describes further the sensation as if a straw were being pushed through willow pith, which is felt when the projecting guide is in the probably sound lung tissue. The guide is breaking into alveoli, the needle having pierced both layers of the pleura, adherent at this point.

Duration of Artificial Pneumothorax.—Jaquerod concludes from his twenty-two cases that artificial pneumothorax does not seem capable of curing definitely a tuberculous process in the lung; the foci tend to resume a progressive course when the compression is arrested. He advises therefore to continue the artificial pneumothorax as long as possible, in some cases even throughout the entire life. "We never will regret having kept it up too long, but we often may have to regret that we stopped it too soon."

The Liver Factor in Prognosis of Mercuric Chlorid Poisoning.—In the two cases described, the patients seemed to be recovering from the effects of the poison on the kidneys but succumbed to the effect on the liver.

Insomnia in Children After Epidemic Encephalitis.—In Reh's two cases the insomnia and agitation at night had persisted for seven and for eleven months when the children contracted measles. As they recovered from this, the normal rhythm of sleep returned, and there has been no recurrence of the agrypnia during the three months to date.

Schweizerische medizinische Wochenschrift, Basel

Oct. 27, 1921, **51**, No. 43

Action on Stomach of Certain Opium Derivatives. Gysi and Sahli.—p. 985.
*The Intradermal Tuberculin Reaction. C. Fischer.—p. 992.
*Both Lungs Compressed by Unilateral Pneumothorax. N. Betchov.—p. 994.
*The Auto-Urine Reaction in the Tuberculous. R. Schmid.—p. 996.
Iron in Treatment of Anemia in Infants. H. von Schulthess.—p. 998.

The Intradermal Tuberculin Reaction.—Fischer applied the intradermal tuberculin test at monthly intervals to 200 tuberculous subjects of different ages. In a few instances a similar injection of distilled water elicited the same reaction. In some others, the same test applied to arm and leg elicited a different response at these different points. The test becomes more sensitive when the diluted tuberculin is mixed with the patient's own blood serum. He thus applied the test to 40 patients, injecting by the Mantoux technic half of a mixture of 0.1 c.c. of the patient's own blood serum with 0.1 c.c. of a 1:5,000 or 1:500 solution of tuberculin. There was no lung focal or general reaction to this, but the skin reaction

was a papule from 1 to 20 mm. in diameter, the same or a little smaller than if the tuberculin alone had been injected at 1:10,000 or 1:1,000. But the skin reaction corresponded better to the course of the case, and seemed to be less dependent on the condition of the skin and the location of the injection. He regards this autoserum technic for the intradermal test as an improvement, rendering the response much more specific, the tuberculin being thus sensitized, as it were. He adds that the test becomes still more specific when, instead of the autoserum and the tuberculin, a corresponding mixture of autoserum and auto-urine is used. The patient's own urine, evaporated to one tenth, and injected intradermally, generally elicits a reaction corresponding to that with 1:10,000 tuberculin, but, mixed with the autoserum, the reaction is more pronounced than with the tuberculin. The mixture of autoserum and tuberculin elicited particularly striking responses in the very earliest stages of acute pulmonary tuberculosis in soldiers whose general health had not begun to show impairment. Everything thus tends, he says, to confirm the value of this technic, and invite further research with it.

The Other Lung with Artificial Pneumothorax.—Betchov concludes from his clinical and experimental research that the artificial pneumothorax is never restricted to one side alone; the other lung always feels the effect to some extent as the soft, yielding pleura is pushed over on it. The consequent partial collapse of the other lung may exert a healing influence on this second lung also. A special factor in this seems to be the reduction of the stasis of lymph in the lung.

The Auto-Urine Reaction.—Schmid states that the Wildbolz technic for the auto-urine reaction elicited a positive response only in forty-nine of sixty cases with unmistakable signs of active tuberculosis. In the eleven negative, the intradermal tuberculin test at 1:1,000 and mostly at 1:10,000 yielded a positive reaction. In three of the cases several repetitions of the own urine test finally induced a positive reaction. These experiences and those with ninety other patients free from or suspected of tuberculosis show that the urine in active tuberculosis may be transiently unable to give the specific reaction, but that by repeating the test the reaction may finally be elicited. Analysis of the small group of contradictory findings indicates that the salt content of the urine may modify the response. Hence, the urine should be made free from salt before applying the test, without altering the antigen.

Archivos Latino-Amer. de Pediatría, Buenos Aires

September-October, 1921, **18**, No. 5

*Preventive Vaccination Against Typhoid Fever. L. Morquio.—p. 365.
*Pure Mitral Stenosis. R. Cibils Aguirre.—p. 369.
Rheumatismal Endocarditis with Pseudopleurisy. Alice Armand Ugón.—p. 376
*Nephritis in Children. E. Beretervide.—p. 382.
Serotherapy in Epidemic Poliomyelitis. L. Velasco Blanco.—p. 402.
Case of Diphtheria with Nasal Onset. R. Fernández.—p. 409.
*The Teaching of the Care of Infants. A. Mola.—p. 411.
Idem. Maria Armand Ugón.—p. 419.
*Acid Hyperfat Milk in Infant Feeding. E. Gaing.—p. 429. Conc'n.
*Infant Welfare Work in S. Paulo. C. Ferreira.—p. 460. Cont'n.

Preventive Vaccination Against Typhoid.—Morquio's experience warns against the danger of typhoid fever developing in healthy carriers when they are injected with the vaccine, in prophylaxis, as another member of the family presents the disease. Some of his experiences in this line were mentioned recently. Among those related here is the case of a family of seven children and six adults, all vaccinated when one child developed typhoid of unknown origin. One of the other children developed symptoms of typhoid directly after the first injection of the vaccine, and two of the other children directly after the second injection of the vaccine. These three children had all been apparently healthy, and he is confident that they would not have developed the disease if they had not been vaccinated. His conclusion is that it evidently is unwise to vaccinate the contacts in a focus at the moment of an epidemic.

Pure Mitral Stenosis.—The case reported is a typical example of infantilism with pure mitral stenosis in a girl of 13 with inherited syphilis.

Nephritis in Children.—Beretervide discusses nine cases of nephritis in children recently encountered. It followed scarlet fever in one; ordinary infectious sore throat in four, in impetigo in two. In more than 80 per cent. of all cases of nephritis in children there is retention of chlorids, and improvement follows at once when the intake of salt and water is restricted, without any need for drugs. This improvement is enhanced if the child is given daily, in addition, from 20 to 200 gm. of raw or very rare meat if there are no signs of uremia. He did not find it necessary to resort to theobromin or other drug in any of these cases. The course is generally mild and clinical recovery complete. One of the children has passed through some acute infections during the year since, without any recurrence of the kidney disturbance. One boy of 12 presented extreme dropsy, without fever. It had been developing for two months, with no history of a preceding acute infectious disease, and the anasarca had only grown worse on restriction to milk. After the albumin in the urine had been reduced to 4 gm. in the course of six months of treatment with the usual measures, and the weight had been reduced from 46.5 to 38 kg., the albumin ran up suddenly to 11 gm., and this suggested a possible syphilitic origin. Prompt and durable improvement followed neo-arsphenamin treatment. He was careful to refrain from mercurial treatment as he once had a child patient in this category develop anuria after mercurial treatment.

Teaching Puericulture.—Mola's communication is an appeal to the authorities to introduce courses of puericulture for girls in the fourth, fifth and sixth year of school, and as a regular course in the normal schools for teachers. There is already a course in maternology in the Uruguay normal school, but it is not in charge of a physician, as he thinks should be the case.

Modified Buttermilk in Infant Feeding.—Gaing's favorable experience with acid buttermilk, to which fat has been added, has already been mentioned in these columns. He here tabulates under eleven headings the 160 cases in which he had used it at date of writing, with photographs of some of the children. Only seven of the infants were normal; eighteen were just born or up to 1 month old. Several in this group were in the congenital debility class, and their weight increased from 2,420 gm. to 5980; 2,300 to 6,990; 2,300 to 7,000 under 177, 266 or 270 days of this acid, hyperfat buttermilk feeding.

Child Welfare Work in S. Paulo.—This is the annual report made by Ferreira on this department of the public health service for 1920.

Brazil-Medico, Rio de Janeiro

Sept. 24, 1921, **2**, No. 11

The Normal Arneth Blood Count in S. Paulo. Ascanio Paiva Reis.—p. 147.
The Ship Doctor. J. Drummond.—p. 155.

Oct. 1, 1921, **2**, No. 12

*Radium Treatment of Precancer Lesions. A. F. da Costa Junior.—p. 163.
*Rupture of Iris Without Trauma. E. Campos.—p. 166.
*Helminthiasis in Children in Northern Brazil. A. da Matta.—p. 167.
Classification of Leeches. C. Pinto.—p. 169.

Radium Treatment of Precancerous Conditions.—Da Costa says that every persisting wart, nevus, papilloma, senile keratosis, leukoplakia, etc., should be carefully watched, and at the slightest sign of aggravation, suggesting possible malignant degeneration, they should be given radium therapy or be excised. In 300 cases of cancer no preexisting factors were known in 46.33 per cent., but in 18 per cent. there was a history of excessive use of tobacco; in 10.66 per cent. a trauma; in 8 per cent. a wart; in 7.33 per cent. some other predisposing dermatosis; in 6.33 prolonged irritation from some cause, and in 3.33 per cent. the previous history was not known. There was thus quite a large proportion of cases in which greater vigilance and prompt radium exposures would probably have warded off the malignant disease. Radium is the best means for this, not on account of being less painful and mutilating than surgical measures, but because the effect is radical and durable. He describes 10 cases of the kind, some in children. In one child a keloid had developed after

a burn on the cheek that had required excision of tissue. Under 50 exposures to radium, to a total of 154 cent. hours, the keloid permanently disappeared. In another child a large disfiguring angiomatous nevus on the cheek subsided without leaving a trace, except a somewhat paler area of the skin, after 21 sittings to a total of 32 cent. hours.

Radial Rupture of the Iris.—In Campos' case the rupture occurred without traumatism, the iris being the seat of progressive atrophy in the woman of 45. She was sitting quietly, making no effort, when the sudden pain in the eye and disturbance in vision announced the rupture, confirmed by the blood in the front of the anterior chamber. Campos says that he has been unable to find an analogous case on record. A syphilitic basis is probable, and there is a history of influenza and infected glands. The intra-ocular tension seems normal.

Helminths in Children in Northern Brasil.—Da Matta found 88.64 per cent. infested of 1,850 children examined, but 53.83 per cent. of them seemed to be merely carriers, without clinical manifestations traceable to their helminthiasis. The hookworm was found in over 78 per cent.; the trichocephalus in 49.34, and ascarids in 45.1 per cent.

Revista de Medicina y Cirugía, Havana

Oct. 10, 1921, **26**, No. 19

*Cholecystitis and Appendicitis. E. Stincer.—p. 787.
Laryngeal Diphtheria. J. M. Buch.—p. 790.

Cholecystitis and Appendicitis.—In the two cases reported by Stincer the symptoms were mainly those of acute appendicitis, but the gallbladder was found inflamed and large, and the appendicectomy had to be supplemented by cholecystectomy. He comments on the frequent coincidence of disease in appendix and gallbladder, and declares that the same principles for treatment apply to both.

Semana Médica, Buenos Aires

Oct. 6, 1921, **28**, No. 40

*Ether in Treatment of Whooping Cough. R. F. Vaccarezza and F. F. Inda.—p. 445.
Operative Treatment of Paralysis of Brachial Plexus. W. Sharpe (New York).—p. 450.
*Chronic Rheumatism Plus Disseminated Sclerosis. O. Wernicke.—p. 455.
*Dystocia from Fecal Tumor. F. Etcheverry Boneo.—p. 462.
Sacralization of Fifth Lumbar Vertebra. M. V. Pozzo.—p. 466.
"Influenzal Croup." N. D. Rosso and R. Denis.—p. 469.

Ether in Treatment of Whooping Cough.—Vaccarezza and Inda relate that their two years of experience with intramuscular injections of ether in the treatment of pertussis has convinced them that this is superior to all other symptomatic measures for this disease. Its course seems to be shortened and the cough loses its spasmodic character in the favorable cases, but in some cases no effect is apparent. Comby has had about 50 per cent. refractory cases, but Audrain, the father of this ether treatment, has never found it to fail. He insists that something besides pertussis must be incriminated for the spasms when ether fails to attenuate the disease. The amount to be injected varies from 0.5 to 2 c.c. according to age. The intragluteal injections are given on alternate days, and more than five or six are seldom required. Three is often all that is necessary. They give one every day for three days and then on alternate days. Sometimes the heart beat is accelerated a little for about an hour. They give no details of their experience, but cite a number of favorable reports on ether treatment of pertussis in recent Italian and French literature.

Chronic Rheumatism.—Wernicke is convinced that disseminated sclerosis is more common than generally supposed. We assume that it is restricted to the nervous system, and we assume that chronic rheumatism is restricted to the muscles, but in actual fact we have no right to assume in any disease that only one organ or tissue is affected by it. It is conceivable that chronic rheumatism might affect the brain, and also that insular sclerosis might affect the muscles. When the two occur together, this suggests the possibility that both are the work of one disease. Both attack tissue the main function of which is support, the connective tissue and the neuroglia. Both produce destructive foci without much inflammation, and without cicatricial retraction or a definite microscopic picture. Both develop in attacks and a wave-like course, and both are aggravated by cold. Both may fuse with diabetes; the nervous and the ocular symptoms of diabetes coincide almost perfectly with those of disseminated sclerosis. There are three points in the body where the nerve tissue and the connective tissue are intimately blended. These are the olfactory bulb, the auditory bulb and the optic disk. Only the latter is accessible to examination, but this confirms, he asserts, the fusion of chronic rheumatism with disseminated sclerosis. The foci in each of these diseases cause no disturbance unless in important tissues, and they scarcely alter the transparency of a tissue. He presents an array of arguments to sustain the view of the fusion of disseminated sclerosis with chronic rheumatism. Disseminated rheumatism, he says, is recognizable by its hereditary features, the frequent involvement of the cornea, crystalline lens and optic papilla, and by the pluriglandular endocrine insufficiency. Less frequent manifestations are keratoconus, glaucoma, high myopia and pigmented retinitis. He urges others to study these ocular anomalies from this standpoint, saying that this will throw light on many questions of neurology and psychiatry as well as of dermatology.

Dystocia from Fecal Tumor.—The case reported teaches that whenever there is dystocia from impacted feces, the sigmoid flexure loop can be counted on to be the responsible segment of the intestine. Its mesentery is so long that this loop can be pushed by the gravid uterus to almost any part of the lower abdomen. In this case it was in the right flank.

Siglo Médico, Madrid

Aug. 20, 1921, **68**, No. 3532

*Tansini's Technic for Amputation of Mamma. G. Aperle.—p. 789.
*Ophthalmoplegic Migraine. M. Marin Amat.—p. 793.
*Treatment of Syphilis. J. Minet (Lille).—p. 797.

Tansini's Method of Amputation of Breast.—Aperle gives an illustrated description of Tansini's technic for swinging around from the back a flap to cover the defect left after amputating the breast. The skin of the entire breast up into the axilla is excised. The dorsal autoplastic flap that fits into its place is much less liable to develop recurrence. With this technic, he says, healing is by primary intention regardless of the extent of the defect to be covered, and there is no cicatricial retraction, no adhesion to the vein, scarcely any interference with the movements of the arm. The method has stood the test of time as the preferable technic since Tansini first published it in 1896.

Ophthalmoplegic Migraine.—The woman of 29 had been experiencing pain in the left side of the head and eye for three months, with occasional vomiting. The pain returned mornings between 9 and 10 and finally became almost continuous. Vision in this eye became less distinct and the pupil was dilated, and there was ptosis of the eyelid, the complete picture of ophthalmoplegia. Vision rapidly declined in both eyes to total blindness in two months, and in the course of the following three years she became practically imbecile, with tendency to contractions and finally heart disease. In a second case, parenteral injection of milk was followed by total subsidence of the pain and of the oculomotor paresis. This patient is still under treatment.

Daily Injection of an Arsenical.—Minet advocates treatment of syphilis by daily subcutaneous injections of neoarsphenamin throughout all the periods of the disease.

Beiträge zur klinischen Chirurgie, Tübingen

1921, **123**, No. 3

*Trephining for Rupture of Meningeal Artery. C. Brunner.—p. 485.
Architectonic Structure of Connective Tissue in Sole. Tietze.—p. 493.
*Formation of Gallbladder After Cystectomy. O. Specht.—p. 507.
*Experimental Study of Callus Production. E. Wehner.—p. 541.
*Carcinosarcoma. M. Claessen and E. Mathias.—p. 584.
*Colloid Cancer of the Ovary. L. Frankenthal.—p. 600.
*Treatment of Pulsion Diverticulum of Esophagus. K. Deis.—p. 623.
Nonspecific Epididymitis and Orchitis. M. Flesch-Thebesius.—p. 633.
Hemangioma of the Joint Capsule. F. C. Hilgenberg.—p. 645.
Operative Mobilization of Elbow. W. Sudhoff.—p. 655.
Experiences with Median S Incision. E. E. Pribram.—p. 668.
Experimental Luxation in Radio-Ulnar Joint. F. v. d. Hütten.—p. 685.
Lumbar Abscess from Necrosis of Pancreas. M. Schülein.—p. 691.
Megasigma with Anal Fissure. H. Kastner.—p. 697.
Pectineal Hernia (Cloquet's). F. J. Kaiser.—p. 704.

Trephining for Rupture of Middle Meningeal Artery.—Brunner has operated in eight cases of meningeal hemorrhage. In one case he had to trephine on one side for this cause, and a year later on the other side, as the man had ruptured the artery on the second side. When it is impossible to discover the bleeding point and ligate the vessel, tamponing is the only resource. He warns that this must not be tight enough to induce symptoms from the pressure on the brain.

Formation of Gallbladder After Cholecystectomy.—Specht reviews the 3,704 operations on the biliary apparatus at the Giessen clinic since 1899. After cystectomy, the cystic duct became enlarged—thus forming a receptacle for the bile, without a calculus—only in 0.24 per thousand of the cases. In the 196 cases in which the duct had been cut close to the neck, a second laparotomy was required later in six, but only in one of them on account of a new receptacle forming and a calculus developing. He reports further a number of experiments on dogs. All his data sustain the extreme rarity of formation of a receptacle, and its comparative harmlessness. There is no need for exposing the patient to danger in difficult operations by insisting on cutting the duct close to the common bile duct.

Callus Production.—The results of Wehner's experimental research confirm that the functional stimulus is the best means to promote production of callus. It is produced not as a mere cement, but in shape and structure it is adapted to the functional use to which it is put. This can be traced from the very first in series of radiograms.

Carcinosarcoma.—Another case is added to the seventy-three compiled from the literature.

Relations Between Ovarian and Gastric Cancers.—Frankenthal warns that with bilateral colloid cancer of the ovaries, of the Krukenberg type, special search should be made for malignant disease in the stomach. He reports an instructive and encouraging case in which both ovaries were removed for this cause in March, 1920, three months after the first symptoms, pain and a hard mass. The patient was a woman of 36. There were no symptoms from the stomach, but roentgenoscopy showed an outline suggesting a tumor in the greater curvature, not modified by palpation, and the stomach was resected and sutured to the jejunum by Krönlein's technic. The woman now looks and feels perfectly well, has gained 18 pounds, and has had no symptoms of the artificial menopause beyond the loss of menstruation. The cancer in the stomach was of the same type as the mucocellular carcinoma in the ovaries. The case teaches that the primary tumor can be sucessfully removed even after it has induced metastasis. Payr has reported a case in which several months had elapsed after the ovarian tumors had been extirpated before the primary tumor in the stomach was discovered and removed, with the best of results. In fifty-five cases of Krukenberg tumors on record, only two instances are known in which the tumors in the ovaries were apparently the primary growth.

Treatment of Pulsion Diverticulum of the Esophagus.—One of Deis' nine cases emphasizes the necessity for not delaying the operation too long, the patient dying from aspiration pneumonia. The others were all cured by ligation of the base of the diverticulum. It was drawn up into the incision and the space around loosely tamponed and drained. By the eighth to tenth day the diverticulum dropped off.

Deutsche medizinische Wochenschrift, Berlin

Oct. 6, 1921, **47**, No. 40, Virchow Number

*Rudolf Virchow; a Retrospect. L. Aschoff.—p. 1185.
Virchow's Contribution to Knowledge of Tuberculosis. Orth.—p. 1188.
The Importance of Virchow's Work on Tumors. C. Kaiserling.—p. 1191.
Virchow as an Apostle of Public Welfare. R. Beneke.—p. 1192.
Virchow as Seen by His Contemporaries. G. Mamlock.—p. 1195.
Anatomic Study of Healed Radius Fractures. H. Virchow.—p. 1195.
Present-Day Conception of Inflammation. F. Marchand.—p. 1197.
*Pharmacologic Observations. A. Bornstein.—p. 1200.
Distribution of Quinin in the Organism. E. Boecker.—p. 1201.
Determination of Cure in Gonorrheal Infection of the Female. A. Blaschko.—p. 1202.
The Psycho-Analytic Interpretation of Dreams. Seelert.—p. 1203.
Modern Conception of Hypertonia. H. Rosin.—p. 1204. Cont'd.
Hemostasis. G. Ledderhose.—p. 1206.

Rudolf Virchow.—In his biographic sketch, Aschoff refers to Virchow as the keenest and clearest thinker of the previous century in the field of pure medical biology. General pathology owes to Virchow a more precise definition of the terms: irritant, irritation, pathologic disturbance, affection, disease process, etc. Virchow expressed very clearly that an elementary pathologic process as conceived of in cellular pathology may be interpreted thus: Some external substance acts upon a living cell and changes it chemically or mechanically. Such external substance is the external or the pathologic cause. The changed condition is the affection (*leiden*). If in the living cell, in consequence of the change it has undergone, an action or a reaction occurs, the change is called an irritation and the pathologic cause is called an irritant. If, however, no such action or reaction takes place; if the condition is expressed merely by the change that the cell has undergone, then we recognize a mere disturbance (*laesio*) or a paralysis. But since the same external cause exerts on one cell an irritating effect, on another a disturbing effect and on still another a paralyzing effect, we must assume a certain differentiation in the internal condition of the cells as the basis of this varying behavior, which leads up to the conception of the inner cause, which we may term the "predisposition." Virchow emphasized, furthermore, that not every pathologic condition constitutes a "disease"; in fact, it does not necessarily have any relation to a disease. A bone fracture is no more a disease than is a kyphosis. We cannot speak of a disease unless, owing to a pathologic condition, further disturbances of life processes are brought about which constitute a danger to the organism. Aschoff adds that Virchow's definitions of terms are not taken sufficiently into account, and that general pathology is not yet purified by Virchow's acuity of perception to the extent that would be desirable.

Pharmacologic Observations on the Sick and Well.—Bornstein reports that, in about 25 per cent. of the cases of diabetes investigated by him, atropin effected a decrease in the content of blood sugar.

Medizinische Klinik, Berlin

Oct. 9, 1921, **17**, No. 41

*Sclerodermic Dystrophy. H. Curschmann.—p. 1223.
*Progressive Paralysis in the Aged. H. Herschmann.—p. 1225.
*Associated Internal Diseases. J. Löwy.—p. 1227. Conc'n No. 42, p. 1259.
*Prophylaxis of Measles with Convalescents' Serum. Manchot and Reiche.—p. 1230.
Injury from Foreign Body in Vagina. H. Koopmann.—p. 1231.
Eosinophilia in Migraine. M. Ganssen.—p. 1232.
Silversalvarsan. H. Boas.—p. 1233.
Large Aneurysm of Axillary Artery. F. W. Kloeppel.—p. 1235.
Gunshot Wound Ignored by Subject. C. Lapp.—p. 1236.
Prevention of Roentgen Ray Injuries. Schwarz and Crepa.—p. 1237.
*The Bone Marrow in Acute Infections. E. F. Müller.—p. 1238.
Ear Disease from Practitioner's Standpoint. K. Grahe.—p. 1240. Conc'n in No. 42, p. 1270.

Sclerodermic Dystrophy.—Curschmann comments on the pluriglandular disturbances manifest in the six cases of sclerodermia he describes in men and women of all ages. He remarks that there is much evidence to sustain the assumption that the skin itself is an endocrine organ. The sclerodermic dystrophies are particularly instructive from this point of view. They and the predominantly neuromuscular forms of dystrophia, and the primary vasomotor neuroses will repay study along this line.

General Paresis in the Aged.—The process of involution already installed in the elderly imprints special features on progressive paralysis when it does not develop till late in life. The infection in 21 of 84 such cases in Jauregg's service at Vienna was of from twelve to over forty years' standing. In 27 per cent. of the total cases the mental derangement was of the persecution type. This paranoid form of general paresis seems to be peculiar to the aged. The optic illusions often took the form of animals, although there was no alcoholic basis. The hallucinations occurred mostly nights, and were often an occupational delirium. In short, the senile general paresis bears the impress of senile psychoses in general.

Associated Diseases.—The first part of Löwy's study of the influence exerted by diseases on each other was reviewed as it appeared. He here discusses the cases in which malaria or erysipelas, etc., have apparently exerted a curative influence

on cancer. It has been asserted that malaria and cancer are antagonistic, and this has been cited as a reason for the rarity of cancer in the tropics. The infection index of persons who develop cancer was found exceptionally small by R. Schmidt in his research in 1913. In 44 per cent. of his gastric cancer cases, there was no infectious disease known in the anamnesis, and in 74 per cent. none of the usual children's diseases. This is a promising field for research, Löwy adds, although the simultaneous occurrence in an organ of both cancer and tuberculosis has been recently reported. Bier's recent success with blood injected into cancers probably owed its effect to the hyperemia induced, which transformed the chronic into an acute inflammation, and the acutely inflamed tissue was loosened up and resorbed, although there was not a complete cure in any instance. Trauma, vaccination, a new infection may induce not only focal reactions but may mobilize the pathogenic germs anew. He cites some of the rare instances in which one disease seemed to cure another. With malaria, this seems to be a form of parenteral protein therapy. Secondary streptococcus infection generally renders the prognosis graver, but a few instances are on record in which chronic nephritis showed marked benefit after intercurrent erysipelas. Constitutional diseases scarcely modify each other, but with superposed infectious diseases, the more acute makes its impress predominantly on the clinical picture.

Convalescents' Serum in Prophylaxis of Measles.—Manchot and Reiche report gratifying results from practical application of this measure to 155 children from 1 month to 5 years old who had been exposed to measles. Only eleven developed the disease thereafter, and it was exceptionally mild in all except in the three oldest children.

The Bone Marrow in Acute Infectious Diseases.—Müller agrees with Naegeli that leukocytosis is the morphologic expression of an extreme biologic change in the functioning of the bone marrow. In 104 cases of acute general infection, no bacteria were found in the bone marrow in 12; in 56 none were found in the femur marrow, but the same bacteria circulating in the blood were found in the marrow of the vertebrae, and, in 36, in both vertebra and femur marrow. In 23 children with various acute infections, the same bacteria were found in the vertebra marrow in 91 per cent., but in the femur only in 17.5 per cent. All these acute diseases are usually accompanied by leukocytosis. Further research on the diseases accompanied by leukopenia showed bacteria in both vertebrae and femurs in 100 per cent. of the 16 cases examined. This constant finding of bacteria in these cases—mostly typhoid—amply explains the leukopenia, and demonstrates the great importance of the bone marrow in the defence against acute infectious diseases. As the vertebra marrow suffers from the presence of the bacteria, new marrow forms rapidly in the long bones, and this new and sterile marrow produces larger numbers of leukocytes.

Münchener medizinische Wochenschrift, Munich

Sept. 23, 1921, **68**, No. 38

Importance of Early Diagnosis of Cancer of the Uterus. P. Zweifel.—p. 1207.
*Rectal Examination in Obstetric Practice. E. Kehrer.—p. 1208.
Spinal Fluid Findings in Normal and Syphilitic Rabbits. F. Plaut and P. Mulzer.—p. 1211.
Vaccine Therapy in General Practice. W. Rimpau and A. Keck.—p. 1213.
Pseudo-Protein Therapy by the Mouth. A. Prinz.—p. 1215.
Domestication Phenomena in Man. Paulsen.—p. 1218.
The Hysteria Problem. F. Moercken.—p. 1220.
Luxation of Hip-Joint in New-Born. P. Sippel.—p. 1221.
*Prophylaxis of Ophthalmia Neonatorum. R. Hirsch.—p. 1223.
"Amnesia Sleep." K. J. Wederhake.—p. 1224.
Physiologic Substitution for Paralyzed Quadriceps Femoris. K. Löwenstein.—p. 1225.
Titration of Urea in the Urine. E. Friedländer.—p. 1225.
Congenital Fistula of the Neck. L. Detzel.—p. 1227.
Historical Data on the Question of Heterobacteriotherapy and Protein Therapy. R. Kraus.—p. 1228.
Occultism. J. Böhm.—p. 1229.
Diagnosis of Extra-Uterine Pregnancy. W. S. Flatau.—p. 1229.

Value of Rectal Examination in Obstetric Practice.—Kehrer emphasizes the danger of infection from the vaginal examination, and urges that ordinarily the rectal examination be substituted for it. The rectal examination reveals conditions just about as well, although the technic requires a little more practice. The objections raised against rectal examination are due to lack of knowledge of the subject.

Effect of Obligatory Prophylaxis on Ophthalmia Neonatorum.—Hirsch states that since the introduction of prophylactic treatment (silver nitrate) of the new-born in obstetric clinics, the morbidity rate for ophthalmoblennorrhea in those clinics has dropped from 10 to 0.09 per cent. A corresponding decrease could not be noted in children born outside of the clinics, as the use of the silver nitrate or other solution was often neglected. In September, 1920, the prophylactic treatment of the eyes of the new-born and the compulsory notification of cases of ophthalmoblennorrhea were established in Prussia.

Therapeutische Halbmonatshefte, Berlin

Aug. 1, 1921, **35**, No. 15

Transfusion of Relatives' Blood. Bürger.—p. 457. Conc'n.
Treatment of Burns. H. Flörcken.—p. 460.
Burns and Their Treatment. H. Harttung.—p. 464.
By-Effects of Phenobarbital. H. Weber.—p. 467.
*Open Air Treatment in Tuberculosis. E. Aschenheim.—p. 470.

Constant Open Air Treatment in Tuberculosis.—Aschenheim reports, in the main, favorable results from open air treatment of 19 tuberculous children in the children's hospital in Düsseldorf. The children were kept day and night, summer and winter, on the veranda with southern exposure. There were 11 cases of pulmonary tuberculosis, 6 cases of tuberculosis of the bones, joint and serous membranes, and 2 cases of tuberculosis in nursing infants aged 10 and 8 months, respectively. The latter terminated in death. In 4 cases the improvement was marked, in 4 it was good, in 8 it was at least noticeable, and in 1 case there was no change either way. Even though the disease process progressed, the children looked ruddy. The appetite improved. The children themselves were enthusiastic, as they could see they were being benefited. There was some increase in weight, but nothing remarkable. Aschenheim considers the open air treatment, if continued for several months, as a valuable therapeutic aid, but it must not be regarded as a sovereign remedy in all cases. No "colds" developed during treatment.

Wiener klinische Wochenschrift, Vienna

Sept. 22, 1921, **34**, No. 38

Experimental Typhus and Immunity. E. Weil et al.—p. 459.
Avitaminosis in Children. W. Knöpfelmacher.—p. 460.
Management of Liver Wounds from Contusion. O. M. Chiari.—p. 460.
Transplantation of Urethra. E. Remete.—p. 461.
Radium Treatment for Leukoplakia. E. Lekisch.—p. 462.

Sept. 29, 1921, **34**, No. 39

Tuberculosis Infection. F. Hamburger.—p. 471.
Roentgen-Ray Diagnosis of Tumors, and of Bone and Joint Affections. R. Kienböck.—p. 472.
Sprengel's Deformity. S. Maurer.—p. 473.
Combined Collargol and Peptone Therapy. A. Kirch.—p. 475.
Differential Diagnosis of Psychogenic Stuttering and Retarded Flow of Ideas. G. Lehner.—p. 476.
When Can Syphilitics Marry? M. Hesse.—p. 476.

Zeitschrift für Kinderheilkunde, Berlin

Nov. 8, 1921, **30**, No. 5-6

*Influencing of Growth by Feeding. K. Kassowitz.—p. 275.
*Development of a Prematurely Born Child. O. Huber.—p. 281.
Desiccated Milk in Infant Feeding. Nobel and Wagner.—p. 291.
*Butter-Flour Mixture in Infant Feeding. A. Mendelssohn.—p. 302.
*Acute Nutritional Disturbances in Infants. S. Engel.—p. 310.
*Occult Blood in Infants' Stools. Erna Fürstenau.—p. 319.
*Detection of Adulteration of Breast Milk. F. Edelstein.—p. 326.
*Swelling of Mammary Glands in the New-Born. G. B. Gruber.—p. 336.
*Concentrated Foods for Infants. E. Heimreich and B. Schick.—p. 363.

Influencing Growth by Feeding.—Kassowitz reports from Pirquet's service at Vienna a series of experiments carried on for six years aiming to promote growth by the method of feeding. The children were in an orphan asylum, and the details are given of fourteen under observation constantly for five years. The ration was calculated at 7 decinems of the surface area unit, and neuropathic loss of appetite was effectually combated. The children are above normal in height and weight, although the parents of some were below the average size.

Fate of Prematurely Born Child.—In the case illustrated by Huber, the infant was born at the sixth month of the pregnancy and she weighed only 790 gm. The child was kept in the clinic until it was a year old and weighed 5,080 gm.

Now, at 8 years of age the child is of normal height, but 5,500 gm. below the normal weight for this age. This undernourishment, however, he adds, it shares with thousands of other Vienna children born at term.

Butter-Flour Mixture in Infant Feeding.—Mendelssohn says that the infants in a hospital service are generally too sick for this form of infant feeding. For stronger children, he regards it as a welcome addition to the means at our disposal.

Acute Nutritive Disturbance in Infants.—Engel declares that vomiting of hematin may occur early and sometimes in quite mild forms of nutritive disturbance. Necropsy in infants that had succumbed to a toxicosis with hematin vomiting showed constantly hemorrhagic erosions in the stomach, while the mucosa was coated with thick and tenacious mucus. The fact that the hemoglobin had been transformed into hematin testified to vigorous secretion of hydrochloric acid. These three findings, the erosions, the profuse mucus production and the profuse production of hydrochloric acid, are all manifestations evidently of overexcitability of the vagus. All of them can be reproduced experimentally by stimulation of the vagus.

Occult Hemorrhage in Infants.—Fürstenau found invisible blood in the stools of 15 infants with nutritional disturbance of a mild type. The oldest was 8 months old. Viewed in connection with hematin in the vomit and other findings incriminating overexcitability of the vegetative system in chronic gastric ulcer, the assumption is plausible that the vegetative nervous system behaves differently in infancy from later in life. To test this, pilocarpin was given to 45 infants, healthy or convalescing from various affections, and the stools were examined for blood thereafter. Tests for several days beforehand had shown the stools free from visible or invisible blood. The younger infants were given 5 mg., the older ones up to 7 or 8 mg. Blood appeared in the stool thereafter in all the infants less than 7 months old and in one recovering from toxicosis—a total of 26 infants. In 22 others no blood was found but a few had diarrhea after the pilocarpin. The stools showing the occult hemorrhage were not modified in any other respect. With larger doses of pilocarpin there was a stormy reaction, profuse sweating or diarrhea and vomiting but no blood in the stools. In a number of the children the stomach content was tested for blood but without results, except in one child with rachitis. The source of the pilocarpin occult hemorrhage therefore must be sought below the stomach. The pilocarpin probably dilates the vessels, and the walls of the capillaries become permeable for blood. These pilocarpin experiments correspond to the clinical observation of occult bleeding in dyspeptic infants, and the stormy reaction to pilocarpin corresponds to toxicosis in infants. Some experiments on guinea-pigs confirmed this isolated action of small doses of pilocarpin on the blood vessels in the intestines in the predisposed. Infants under 7 months old seem to be all predisposed; later than this the vegetative system becomes less susceptible to the action of pilocarpin. The objection that muscular spasm might be responsible for the occult blood is refuted by the fact that in the tests on guinea-pigs the action of the muscles was abolished by giving opium with the pilocarpin.

Test for Adulteration of Breast Milk.—The high lactose content and the low albumin content of breast milk enable detection of adulteration by change of color during reduction of a copper solution, and the amount of ferric oxid required to precipitate the albumin. Edelstein gives a color scale of the findings in samples of breast and cows' milk.

Swelling of Mammary Glands in the New-Born.—Gruber's fourteen photomicrograms sustain his assertion that the mammary glands in the fetus and newly born may serve for proliferation of cells as a kind of blood production.

Concentrated Food for Infants.—Helmreich and Schick's experience with doubly and trebly concentrated food in small compass has been previously described. The report issues from Pirquet's service at Vienna, and this communication reports results in 218 new-born infants given the doubly concentrated sweetened whole milk or other mixtures. The best results were obtained with unmodified whole milk and with sweetened whole milk concentrated once and a half.

Zeitschrift für urologische Chirurgie, Berlin

March 14, 1921, **6**, No. 3-4

*Kidney Tumors. E. Heppner.—p. 145.
*Congenital Absence of One Kidney. G. Venzmer.—p. 162.
*Bladder Tumors. O. Egger.—p. 175.
Tardy Hemorrhage After Ureter Lithotomy. R. Bonn.—p. 218.
*Surgical Treatment of Nephritis. H. Rubritius.—p. 225.

Kidney Tumors.—Heppner states that in the 53 operative cases reviewed, sudden hematuria or the accidental discovery of a tumor was the first sign of trouble. The dull pains sometimes noted had usually been ascribed to rheumatism or a purely nervous origin. Fever sometimes aids in the detection of malignant disease in the kidney, but the urine is of no use for the differential diagnosis. Pain in the shoulder on that side is instructive. There was recurrence of the tumor in 6 of the 53 cases, and the total mortality to date has been 45.4 per cent. The tumors were of nine different kinds.

Congenital Absence of One Kidney.—Venzmer summarizes the literature on this subject, and a recent compilation of 17 cases in which the kidney was removed in ignorance of the fact that it had no mate. To this list he adds 2 more cases, from Kümmell's service at Hamburg. In one, the young man had lacerated the kidney in a fall, and in the other case a large tumor called for nephrectomy. Six other cases have been recorded in former years in the history of the hospital, but modern methods of investigation now reveal the absence of the second kidney. The most instructive means for this is comparison of the freezing point of the blood and of the urine. With even one kidney, functioning approximately normally, the freezing point of blood and urine is about the same, but with a diseased solitary kidney, the increasing concentration of the blood, and hence lower freezing point, warn against nephrectomy. It has been calculated that over a third of the cases of solitary kidney are pathologic, but they often allow removal of calculi or other palliative operation.

Bladder Tumors.—Egger gives the details of 38 operative cases of bladder papillomas from Kümmell's service and one of myxoma, one adenoma, 42 of cancer, and 5 of carcinomatous recurrence of a benign papilloma. He concludes the list with a case of hypernephroma in the bladder—a total of 83 cases, all but 15 in men, except 2 boys of 10 and 11. The prognosis, he says, is always grave, although early and radical removal of a pedunculated tumor, especially if there have been profuse hemorrhages, is most promising. He regards the suprapubic incision as the best to date; this alone allows a radical removal of the growth. The bladder was removed in 8 cases, but the patients did not long survive. Of the benign cases, 2 terminated fatally soon after the operation, and 3 from malignant degeneration later.

Surgical Treatment of Nephritis.—Rubritius agrees with those who think that the evil consequences sometimes observed after nephrotomy are due to the lack of care in restoring the kidney to its bed. It might be well to supplement the nephrotomy with a fixation operation, as for a wandering kidney, except when there has been suppuration and hence danger of adhesions. If the ureter gets plugged with a blood clot, the urine will accumulate, and this may wash off the thrombi and start a hemorrhage. Surgical treatment of nephritis may be indicated in certain forms of acute nephritis, in the anuria of mercuric chlorid poisoning, in nephritis with an abscess, in rebellious sheet hemorrhage from one kidney, in cases of unbearable pain, and with anuria and uremia in course of chronic nephritis, especially the cases without edema as giving the least favorable prognosis. The benefit from operative measures in these conditions is somewhat of a mystery, but the literature shows that benefit has certainly been derived in many instances. The surgeons must strive to simplify decapsulation, and physicians must learn to call on the surgeon oftener in rebellious kidney disease.

Zentralblatt für Gynäkologie, Leipzig

Sept. 10, 1921, **45**, No. 36

Hypnosis in Vaginal Examination of Gravidae for Instruction Purposes. J. Raefler and F. Schultze-Rhonhof.—p. 1270.
Hypnosis in Gynecology. J. Raefler.—p. 1274.
Aorta Clamp for General Practice. K. Hoffmann.—p. 1279.
Ventrofixation of the Uterus. C. Knoop.—p. 1281.
Procedure for Fixation of Uterus. M. J. Garcia de la Serrana.—p. 1283.

*Etiology of Anal Fissures in Women. F. Kossmann.—p. 1286.
Healing of Bilateral Hematosalpinx by Roentgen Irradiation. S. Siedentopf.—p. 1288.
Terminology for Size of External Os Uteri. W. Liepmann.—p. 1289.

Etiology of Anal Fissures in Women.—Kossmann's investigations lead him to believe that the primary injury in anal fissures in women is often produced during childbirth; more especially is this true of primiparas. And fissures may be readily differentiated from hemorrhoids by the fact that the pain frequently continues for hours after defecation, whereas in the case of hemorrhoids and other inflammatory affections of the rectum the pain usually ceases soon after defecation.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

Sept. 24, 1921, **2**, No. 13

*Malaria in the Netherlands. B. Eisendrath.—p. 1531.
Hydrocyanic Acid in Vermin Extermination. Boland.—p. 1541.
*Quinidin in Auricular Fibrillation. J. van Tilburg.—p. 1555.
Silversalvarsan-Natrium. J. Papegaay.—p. 1564.
Case of "Hysteric Gangrene." G. C. Bolten.—p. 1570.
*Publications of the American Medical Association. W. S. Stekhoven.—p. 1601.

Malaria in the Netherlands.—Eisendrath discusses ways and means to stamp out the endemic malaria in the northern part of the Netherlands. He estimates that at least 10 per cent. of all the inhabitants north of the Ij have the disease.

Quinidin in Treatment of Auricular Fibrillation.—Van Tilburg reports success from treatment with quinidin in 8 of 10 cases of total arrhythmia, including some with valvular disease and some with nephritis and arteriosclerosis. Necropsy in the two refractory cases showed far advanced mitral and tricuspid stenosis or mitral stenosis alone; one died from uremia, one from exhaustion. In 5 cases the favorable effect was durable. His experience testifies to the advantage of beginning with small doses, 200 mg. the first day; the second day, two 200 mg. doses; the third day, four, and the fourth day three 400 mg. doses. Jenny has reported giving up to 2 or 3 gm. daily without harm, but it is not certain yet that better results are obtained with large doses. Injurious action from long continued use is not known. The drug has to be kept up. The patients think they cannot get along without a certain amount afterward. He has found addition of a little caffein useful. Both digitalis and quinidin seem to retard conduction of the impulse, and a cumulative action might be feared, but, on the other hand, digitalis reenforces the contraction of the heart which quinidin tends to check. He thus found it possible, after arresting the fibrillation with quinidin, to check with digitalis the tachysystolia that followed. It may be well to give digitalis to bring the heart into better condition before beginning with the quinidin. Van Tilburg describes the course in detail of some of his cases, showing the need for careful steering, the hand constantly on the tiller.

The Publications of the American Medical Association from a Netherlands Point of View.—This is Stekhoven's fourth article on various new and long established medical journals. In this one he reproduces the list of the Association's publications. His compilation fills six pages as he quotes a few lines from the description of each of the eight periodical publications, the fourteen "books for the practitioner," the numerous publications of the Council on Pharmacy and Chemistry, on Health and Public Instruction, Propaganda Department, etc. He remarks, "The fear of being accused of lack of appreciation of the efforts of the Netherlands medical press, and of estimating too highly the value of American medical journalism, shall not deter me from calling attention to the publications of the American Medical Association, which merit attention in every respect. Those who have enriched their library with the principal ones of these publications, which excel by their practical and scientific value, their excellent get-up and low price, will be amazed—as I am—that they are almost unknown in the Netherlands, and consequently they are not appreciated. And this notwithstanding the fact that THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION has quite a number of subscribers and readers in this country." His concluding comment on the long list is: "This distinguished series of publications forms a library in itself. For every physician and on every medical topic something is to be found. Every time I looked through this treasure of publications I discovered something new. Hence I make no apologies for offering the readers of the *Tijdschrift* this 'dry' compilation of books, emblems, prices, etc. I am confident that they will share my enthusiasm for these examples of high grade medical journalism in America. The time has passed when America could not be named without some one's muttering 'humbug business'. . . . A small land like ours can make itself great by appreciating the great."

Acta Medica Scandinavica, Stockholm

Nov. 7, 1921, **55**, No. 5 and Supplement

*Measurement of the Blood Pressure During Sleep. C. Müller.—p. 443.
Total Aphasia with Temporal Lobe Focus. H. Marcus.—p. 486.
*Diabetic Coma with Renal Insufficiency. S. K. Mördre.—p. 511.
Case of Atypical Tuberculous Meningitis. N. Johannsen.—p. 518.
*The Arterial Pressure Preceding Nephritis. E. Kylin.—p. 525.
*Effects of Alcohol on Digestion in the Stomach. A. O. Haneborg.—Supplement, pp. 1-124.

The Blood Pressure During Sleep.—Müller's records of the blood pressure measurements on the sleeping subject supply a basis for adopting this as a clinical method of investigation. His tests were made on normal persons of all ages, and on twenty-seven with high blood pressure, and eighteen with acute or chronic glomerular nephritis. During sleep the systolic pressure in men is 94 mm. and in women 88 mm. in normal conditions. A pressure 15 mm. higher than this indicates pathologic conditions. In children between 3 and 14, the pressure is usually 6 mm. less than in adults. His research tends to demonstrate that the constant drop in the pressure in deep sleep is due to the relaxation of the tonus of the small peripheral arteries in slumber. The individual differences in the blood pressure in different normal persons during the day are wiped out in sleep, and hence these differences must be conditioned mainly by merely functional variations in the tonus of the arteries—the expression of vasomotor instability. The average pressure during sleep rises after the age of 45 as a rule, but many of his elderly subjects had a normal pressure in sleep. This testifies that age alone does not necessarily raise the blood pressure. The pressure during sleep thus throws light on the nature of the hypertonia while awake. A pathologic sleep pressure was found in one case with only 115 mm. waking pressure, while the sleep pressure was sometimes found normal with day pressures up to 135 mm. in men and 130 in women. Consequently, he reiterates, the blood pressure in waking hours does not reveal whether it is conditioned by normal or pathologic factors until it is compared with the pressure during sleep. The subjects were given a little barbital before the test measurement to insure sound sleep. The article is in German.

Diabetic Coma with Renal Insufficiency.—Mördre discusses a case of fatal diabetic coma in a young woman with ketonemia, hyperglycemia of 0.9 per cent.; urea, 2.57 per thousand in the blood; glycosuria 4 per cent.; but no ketonuria, no Gerhardt reaction. (In English.)

The Arterial Pressure Before Onset of Nephritis.—Kylin calls attention to the rise in blood pressure which may precede by a few days the appearance of albumin, casts and blood in the urine. He makes a practice of recording the blood pressure daily in scarlet fever, tonsillitis, etc., and is thus able to foretell and possibly ward off impending nephritis. Three blood pressure charts illustrate this, and demonstrate that peripheral symptoms precede those in the kidney in acute glomerular nephritis. (In French.)

Effects of Alcohol on Digestion.—Haneborg gives the details of experiments in this line on ninety-two persons given various test meals with and without brandy, wine or beer. The 124 page report is in English. The general conclusion is, "Taking everything into consideration, it may be said that the ancient reputation of alcohol as a stomachicum has received a blow, although a conditional one, in the investigations under consideration." . . . "The psychic influence of alcohol appears to be of less importance than had been expected." . . . "A small dose of alcohol (15 c.c. brandy) with a meal increased in a number of healthy persons the quantity of gastric juice, its HCl content and its digestive capacity."